NRE Staff Report

1979 PESTICIDE USE ON VEGETABLES IN FIVE REGIONS

by

Walter L. Ferguson

September 1983

ERS Staff Report No. AGES830920

Natural Resource Economics Division
Economic Research Service
U.S. Department of Agriculture
Washington, D.C. 20250

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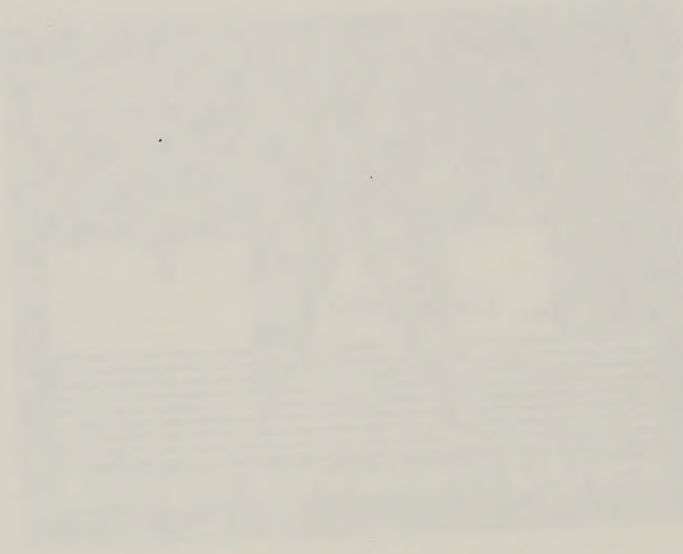
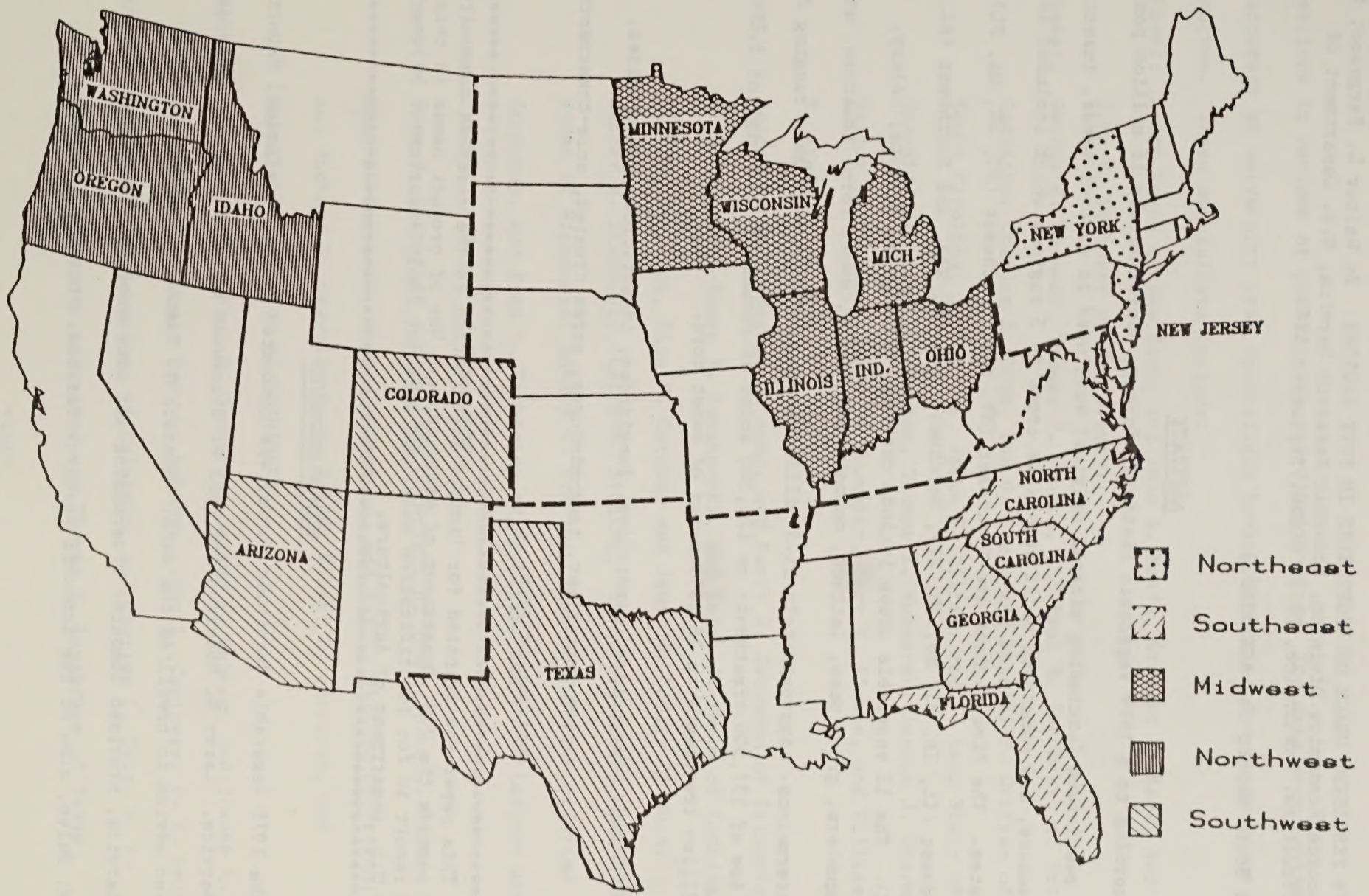


Figure 1. States included in the 1979 Vegetable Pesticide Survey



1979 PESTICIDE USAGE ON VEGETABLES IN FIVE REGIONS. By Walter L. Ferguson; Natural Resource Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, D. C. 20250; September 1983.

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ABSTRACT

According to a 1979 Vegetable Pesticide Survey, approximately 16 million pounds of pesticides (excluding mineral spirits) were used to control weeds, insects, diseases, and nematodes on 12 vegetable crops in 5 regions which included 18 States. The five regions are Northeast (NY, NJ), Southeast (NC, SC, GA, FL), Midwest (IL, IN, MI, MN, OH, WI), Northwest (ID, OR, WA), and Southwest (AZ, CO, TX). The 12 vegetable crops include cabbage, cantaloups, carrots, celery, cucumbers, green peas, lettuce, onions, snap beans, sweet corn, tomatoes, and watermelons. Approximately 11.5 million acre-treatments were made ranging from a low of 137,500 treatments on 126,300 acres of cucumbers to a high of 3.2 million treatments on 555,900 acres of sweet corn.

KEY WORDS: Pesticides, herbicides, fungicides, insecticides, nematicides, active ingredient, tank-mixtures, acres treated, acre-treatments, application rate.

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suggestions in reviews of preliminary and final drafts. The data were reviewed for accuracy by university crop specialists having expertise for those crops in the survey. These specialists include:

Northeast: Jerry Heath of New York; and John A. Meade, Stewart E. Race, and John K. Springer of New Jersey.

Southeast: George G. Kennedy, Thomas J. Monaco, and Paul B. Shoemaker of North Carolina; Charles E. Drye, Dan O. Ezel, and Randall P. Griffen of South Carolina; J. Dan Gay, James F. Miller, and A. Leon Stacy of Georgia; and Fred A. Johnson, Thomas A. Kucharek, Amedga J. Overman, Walter T. Scudder, James R. Shumaker, Gary W. Simone, and William M. Stall of Florida.

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Preface

This report is a summary of six preliminary reports based on a 1979 Vegetable Pesticide Survey conducted by the Statistical Reporting Service. These regional reports contain pesticide use patterns on 12 vegetable crops in 18 States. Data reported includes acres treated, acre-treatments, times applied, and quantity used. Authors and coauthors included Ted Kuntz, Shwu-Eng Webb, Iris McCalla, and Walter Ferguson. The preliminary reports are:

1. 1979 Pesticide Use on Vegetables in the Northeast, A Preliminary Report, December 1981, ERS Staff Report No. AGES811218.
2. 1979 Pesticide Use on Vegetables in the Southeast, A Preliminary Report, October 1981, ERS Staff Report No. AGES811029.
3. 1979 Pesticide Use on Florida Vegetables, A Preliminary Report, July 1981, ERS Staff Report No. AGES810708.
4. 1979 Pesticide Use on Vegetables in the Midwest, A Preliminary Report, December 1981, ERS Staff Report No. AGES811217.
5. 1979 Pesticide Use on Vegetables in the Northwest, A Preliminary Report, March 1982, ERS Staff Report No. AGES820305.
6. 1979 Pesticide Use on Vegetables in the Southwest, A Preliminary Report, December 1981, ERS Staff Report No. AGES811221.

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1979 PESTICIDE USE ON VEGETABLES IN 5 REGIONS

INTRODUCTION

In this report, 1979 pesticide use patterns are presented for 12 vegetable crops in 5 regions, which include 18 States. Pesticide use patterns are discussed for cabbage, cantaloups, carrots, celery, cucumbers, green peas, lettuce, onions, snap beans, sweet corn, tomatoes, and watermelons. Survey data were collected on quantities of pesticides used, acres treated, acre-treatments, number of applications, seasonal rates, and rate per acre-treatment. This report provides information useful to policymakers, researchers, extension specialists, and industry personnel. Because vegetables are highly susceptible to weeds, insects, diseases, and other pest damage, there is a continuing need for pesticide use information. Regulations on the use of pesticides and review of registrations by the Environmental Protection Agency also create the need for accurate, detailed information for economic studies of pesticide use.

A major factor affecting the quantity of pesticide use is the number of acres planted. For most of the 12 vegetable crops, the number of acres planted in 1979 closely approximates the average acreage planted for 1978-80 (Table 1). A difference of about 3 percent is indicated for the 12 crop total, 1.91 million acres in 1979 versus 1.85 million for the 3-year average. The decrease in planted acreage in 1980 for cucumbers, cantaloups, and watermelons reflects growers' response to higher prices for soybeans and other substitute crops. Overall, 1979 could be described as a typical year for acreage of vegetables planted. The number of planted acres, however, is only one of several factors affecting pesticide usage. Weather conditions, pest infestations, and pest resistance affect pesticide rates and the number of applications per season.

Table 1. Acres planted in 1979 compared with 1978-80 average, 12 vegetables, 5 regions a/

Crop	Fresh market			Processing market			Fresh and processing markets	
	1978	1979	1980	1978	1979	1980	1979	3-year average
	1,000 acres							
Cabbage	78.5	80.3	78.0	9.2	8.5	8.1	88.8	87.5
Cantaloups	43.5	40.9	36.4	-	-	-	40.9	40.3
Carrots b/	-	-	-	-	-	-	46.1	43.1
Celery	15.4	15.4	17.1	-	-	-	15.4	16.0
Cucumbers	30.6	29.0	20.3	97.2	97.3	84.4	126.3	119.6
Green peas	-	-	-	325.8	344.5	294.8	344.5	321.7
Lettuce	78.3	84.6	79.4	-	-	-	84.6	80.9
Onions b/	-	-	-	-	-	-	87.7	85.5
Snap beans	34.6	35.4	38.9	205.5	211.2	196.9	246.6	240.8
Sweet corn	142.2	137.8	135.6	431.1	418.1	376.4	555.9	547.1
Tomatoes	80.9	77.2	78.4	47.2	47.1	40.8	124.3	123.9
Watermelons	180.8	166.3	147.8	-	-	-	166.3	165.0
Total							1,927.4	1,871.4

a/ Vegetables, 1980 Annual Summary, ESS, USDA, Vg 1-2(80), December 1980.
b/ Acres planted data not available for individual markets in some regions.

Planted acreage for the 12 crops surveyed in 1979 ranged from nearly 556,000 acres for sweet corn to about 15,000 acres for celery. Whether these vegetables are sold in the fresh market or the processing market, the appearance of the product has a considerable impact on market price Thus, for these fresh market and processing crops, pesticides are especially important.

METHODOLOGY

A random sample design was used to select growers. Data were expanded for individual farms in the survey to reflect all farms by multiplying the sample data by the inverse of the sample ratio for the stratum. The pesticide use data for each crop were then adjusted by the ratio of the number of acres grown in the State to the number of expanded sample acres for each crop grown.

INTERPRETING THE DATA

Pesticides are grouped into the following categories: (1) herbicides (used to kill plants or inhibit their growth), (2) insecticides (used to kill or inhibit insects), (3) fungicides (used to control diseases by killing or inhibiting fungi), and (4) nematicides (used to kill or inhibit nematodes and other organisms in the soil).

The term "acres treated" is used to identify acres receiving one or more applications of a specific pesticide. Acres treated are not additive because two or more different specific ingredients may have been used on the same acre. Therefore, sums of acres treated are not shown in Tables 5 through 19 as summing them could result in double counting.

"Acre-treatments" are the number of acres treated one time by a specific pesticide. The number of applications per season was derived by dividing the acre-treatments by the acres treated for each specific pesticide material.

Single application and annual rates are estimated for specific active ingredients. Annual rates include the average rate for all seasons. The single application rate is derived by dividing the total active ingredients of a specific pesticide by the number of acre-treatments; the annual rate is derived by dividing the total active ingredients by the number of acres treated.

Acres treated and acre-treatments for Bacillus thuringiensis, a bacteria, are included in the insecticide category. The rates and quantities applied are not reported because application rates are expressed in terms of spores per gram rather than in pounds of active ingredient.

The rate per application and number of applications for specific pesticides may vary considerably from published guidelines for a number of reasons. For example, published rates are generally broadcast rates whereas a number of the rates reported in the survey were band or in-furrow rates which are one-fourth to one-third that of the broadcast rates. Also, young vegetable plants require considerably lower dosage rates of insecticides and fungicides than do older plants. For insect control, vegetables grown on sandy soils generally require lower rates of soil insecticides than the same vegetables grown on organic soils.

Weather plays an important role in the use of fungicides as low moisture years generally require lower rates and fewer applications than high moisture years. Some varieties of vegetable have greater resistance to specific diseases and are less attractive to insects than other varieties, requiring lower rates and fewer applications. Also, resistance of pests to pesticides plays an important role in determining rates and number of applications. Rates are generally lower when two or more pesticides with the same spectrum of control are applied in tank-mix applications than when those respective pesticides are applied as single ingredients.

RELIABILITY OF ESTIMATES

Estimates based upon sample surveys have varying degrees of statistical reliability. Confidence in data depends upon sample size, sampling methods, and the variability of the responses. To provide the user of the data with some indication of the reliability of the estimates, coefficients of variation (CV's) are presented in Appendix Table 1. The CV is a measure of relative variation (expressed in percentage terms) and can be used to indicate the degree of confidence a user can place in the estimate. The smaller the CV, the more reliable the estimate.

In simplest terms, it can be said there is 95 percent confidence that the sample represents the true population and that the true value for the population lies within an interval defined as the estimated value $\pm$ 2 CV's times the estimated value. For example, with a CV of 10 percent and an estimate of 40, the interval would be 32 to 48. However, there is a 5 percent chance that the true value does not fall within the interval as defined above because the sample is not representative of the population.

CV's were calculated only for acres treated with specific pesticides. The estimates of acres treated are expected to ha e rea-er variation than other data reported. Consequently, for most other information included in this report, the level of reliability should be equal to or greater than reported for acres treated.

RESULTS

In 1979, growers in the 5 regions planted 1.9 million acres of the 12 vegetables. A total of 1.8 million acres were treated using 15.8 million pounds of all pesticides in 11.5 million treatments (Table 2).

Of the 1.8 million treated acres 1.6 million, or about 90 percent were treated for weed control and 1.4 million acres, or nearly 80 percent were treated for insect control. About 700,000 acres, or nearly 40 percent were treated for disease control and 100,000 acres were treated for nematode control.

Of the 11.5 million total acre-treatments, insecticides comprised 5.1 million of the single ingredient applications, fungicides 3.2 million, and herbicides 1.5 million (Table 2). Southeast and Midwest growers accounted for about 5.0 million and 3.9 million, respectively, of the total 11.5 million acre-treatments. Sweet corn comprised 37 percent and tomatoes 22 percent of the 5.1 million insecticide acre-treatments (Table 3). Tank-mixed pesticides comprised 1.5 million acre-treatments.

Of the 15.8 million pounds of active ingredients applied, fungicides comprised approximately 25 percent and herbicides and insecticides each about 20 percent (Table 2). Pesticide tank-mixes accounted for 23 percent of the total quantity of pesticides applied. Tomato growers accounted for about 45 percent of the 3.8 million pounds of fungicides used on all crops (Table 3).

Southeast growers used pesticides more intensively than growers in any other region. For example, Southeast growers planted about the same acreage of vegetables as did Northwest growers, 19 percent versus 17 percent of the total acreage, but used considerably more acre-treatments, 43 percent versus 36 percent of the total acre-treatments (Figure 2). Midwest growers planted the

Table 2. Vegetables, by region: Acres planted, acre-treatments, and quantities of pesticides used, 12 vegetables, 1979

Item	Northeast	Southeast	Midwest	Northwest	Southwest	Total 5 regions
	1,000					Million
Acres planted a/	193	361	781	322	269	1.9
Acres treated b/						
Weed control	171	276	664	253	223	1.6
Insect control	133	299	597	181	244	1.4
Disease control	76	295	196	18	198	.7
Other	27	42	3	9	16	.1
Any pest control	189	356	737	300	261	1.8
Acre-treatments b/						
Single applications						
Herbicides c/	173	170	756	304	146	1.6
Insecticides	313	2,323	1,750	284	455	5.1
Fungicides	112	2,108	620	27	380	3.2
Other	9	17	36	7	5	.1
Tank-mixes	205	373	724	49	186	1.5
Total	817	4,991	3,886	671	1,172	11.5
Quantities, lbs. a.i. b/						
Single applications						
Herbicides c/	472	258	1,320	668	321	3.0
Insecticides	183	1,050	1,479	200	315	3.2
Fungicides	177	2,069	958	45	561	3.8
Other	15	1,213	501	211	203	2.1
Tank-mixes d/	472	930	1,769	211	317	3.7
Total	1,319	5,520	6,027	1,335	1,717	15.8

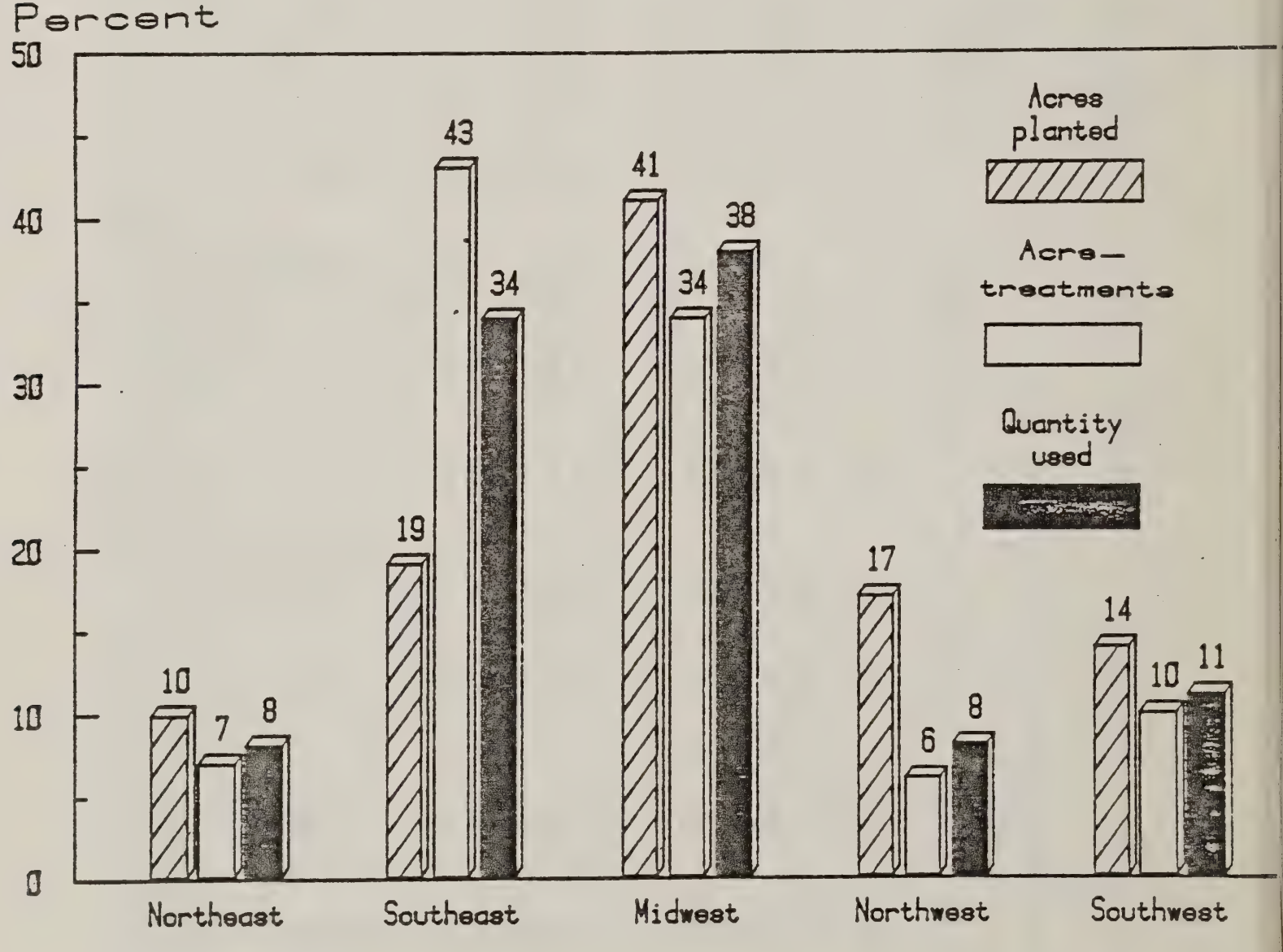
a/ Vegetables, 1980 Annual Summary, ESS, USDA, Vg 1-2 (80), December 1980.
b/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA,
c/ Excludes 794,730 gallons of mineral spirits sprayed in 12,715 acre-treatments on carrots.
d/ Tank-mix ingredients are specified in Appendix Tables B-M.

Table 3. Vegetables, by crop: Acres planted, acre-treatments, and quantities of pesticides, 12 vegetables, 1979

Crop	Cabbage	Cantaloups	Carrots	Celery	Cucumbers	Green peas	Lettuce	Onions	Snap beans	Sweet corn	Tomatoes	Watermelons	Total
	1,000												Mil.
Acres planted a/	89	41	46	15	126	344	85	88	247	556	124	166	1.9
Acres treated b/													
Weed control	55	27	29	15	96	296	71	84	235	475	107	74	1.6
Insect control	67	36	20	13	54	245	65	84	188	433	122	90	1.4
Disease control	38	34	19	15	34	184	79	74	123	77	117	142	.7
Other	4	3	2	3	2	8	53	24	8	12	40	2	.1
Any pest control	67	39	30	15	117	296	79	87	244	537	124	156	1.8
Acre-treatments b/													
Herbicides c/	67	17	60	28	34	285	60	217	224	426	104	30	1.6
Insecticides	519	66	86	206	49	226	277	242	387	1,889	1,104	91	5.1
Fungicides	126	86	84	304	28	-	67	273	194	404	1,486	197	3.2
Other	4	2	3	d/	d/	-	-	18	-	17	29	1	.1
Tank-mixes	76	11	54	33	26	39	105	212	196	475	294	18	1.5
Total	792	182	287	571	137	550	509	962	1,001	3,211	3,017	337	11.5
Quantities, lbs. a.i. b/													
Herbicides c/	127	34	67	60	76	242	132	802	502	879	86	29	3.0
Insecticides	293	42	51	67	43	112	139	200	332	1,360	519	62	3.2
Fungicides	144	117	126	290	44	-	77	522	214	433	1,584	234	3.8
Other	49	51	472	d/	9	-	-	232	-	3	1,220	7	2.1
Tank-mixes	92	25	115	93	86	78	156	671	437	879	1,009	31	3.7
Total	705	269	831	510	258	432	504	2,427	1,485	3,554	4,418	363	15.8

a/ Vegetables, 1980 Annual Summary, ESS, USDA, Vg 1-2(80), December 1980.
b/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
c/ Excludes 794,730 gallons of mineral spirits sprayed in 12,715 acre-treatments on carrots.
d/ Less than 500.

Figure 2. Percentage Distribution by Region of Planted Acres (12 Vegetables) Acre-Treatments and Quantities Used, All Pesticides, 1979



SOURCE: Table 2.

most acreage and used the greatest quantity of pesticides, 41 and 38 percent, respectively.

Tomato growers used pesticides more intensively than growers of any other crop, accounting for only 6 percent of the planted acres but 26 percent of the acre-treatments (Figure 3). Other intensively treated crops included cabbage, carrots, celery, and onions. Comparatively, green peas accounted for 18 percent of the planted acres and only 5 percent of the acre-treatments. Other less intensively treated crops included cucumbers, snap beans, and watermelons. Sweet corn comprised the largest proportion of planted acres and acre-treatments, accounting for nearly 30 percent of each category.

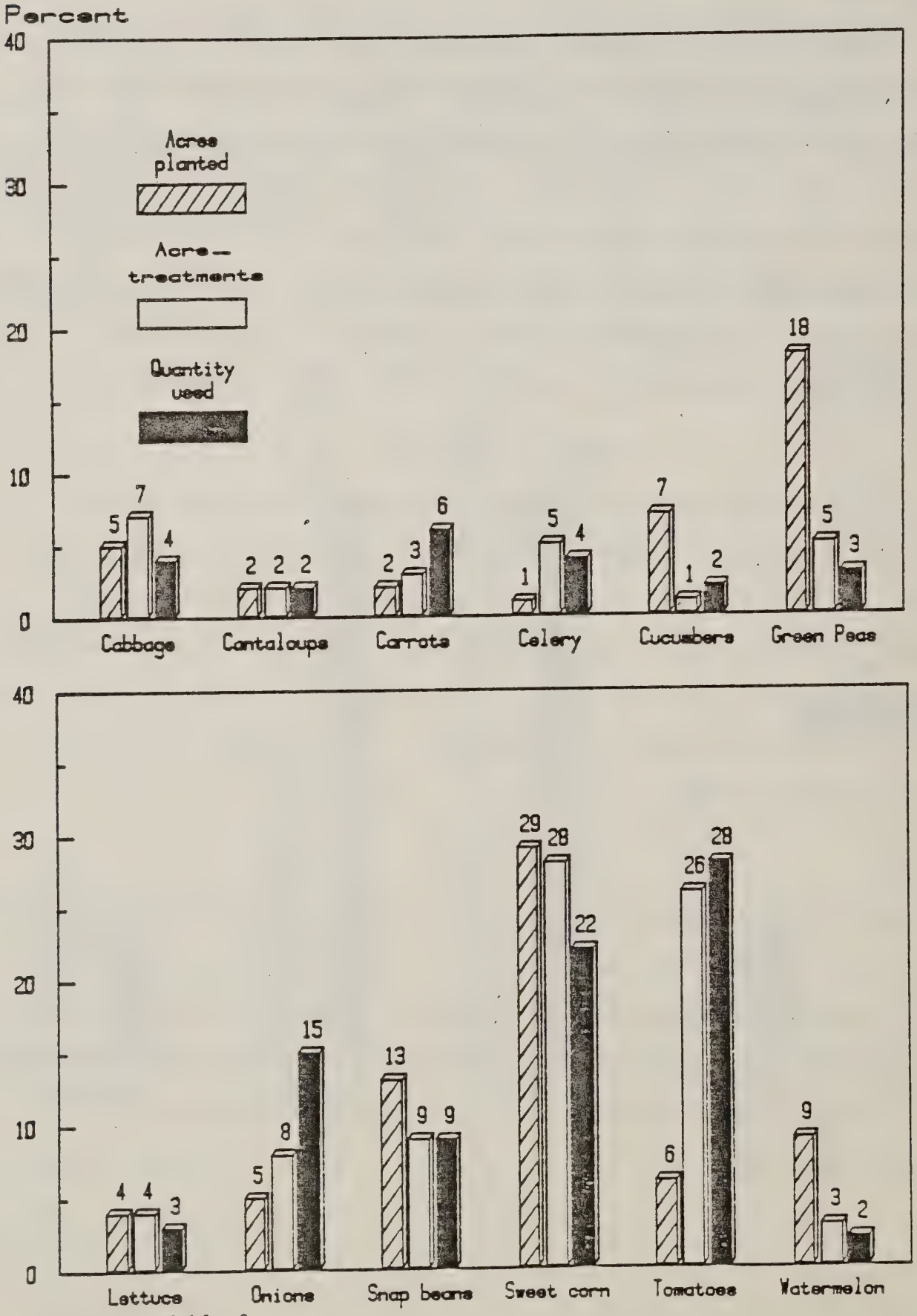
PESTICIDE USE BY CROP

In the following sections, the major pesticides used on each crop are discussed for the five regions in terms of acres planted, acres treated, acre-treatments, and quantities of pesticides applied. Some of the crops, for example celery and tomatoes, are multiple season crops grown by the same grower during two or more seasons of the year. The information presented is the total pesticide use during 1979 calendar year. Detailed data are provided by region in appendix tables.

Cabbage

In 1979, approximately 89,000 acres of cabbage were planted mostly for the fresh market, ranging from nearly 30,000 acres in the Southeast to 1,700 acres in the Northwest (Appendix A1). An estimated 5-region total of 705,100 pounds of pesticides were used in 791,300 acre-treatments to treat 67,000 acres (Table 4). Tank-mixed pesticides accounted for 75,700 acre-treatments and 92,400 pounds of pesticides.

Figure 3. Percentage Distribution by Crop of Planted Acres (12 Vegetables) Acre- Treatments and Quantities Used, All Pesticides, 1979



SOURCE: Table 3.

Table 4. Cabbage: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
	---------- 1,000 ----------			
Single applications				
Herbicides				
Trifluralin	33.9	(4)	35.9	26.4
Nitrofen	8.4	(15)	10.7	21.5
Bensulide	3.4	(1)	5.5	21.2
DCPA	6.2	(17)	6.6	26.8
Other	-		7.8	30.8
Total	-		66.5	126.8
Insecticides				
Methomyl	35.8	(5)	183.4	106.8
Bacillus thuringiensis	22.0	(8)	92.6	c/
Methamidophos	32.7	(5)	81.5	72.2
Parathion	11.7	(15)	36.9	15.4
Permethrin	3.5	(2)	19.9	6.2
Other	-		104.9	92.8
Total	-		519.3	293.4
Fungicides				
Maneb	14.8	(7)	75.1	104.0
Chlorothalonil	8.5	(17)	31.1	20.7
Zineb	0.8	(33)	5.1	2.1
Mancozeb	0.7	(32)	3.3	3.9
Copper hydroxide	1.2	(22)	2.3	3.0
Other	-		9.0	9.8
Total	-		126.0	143.5
Nematicides				
Fenamiphos	3.2	(87)	3.2	6.5
D-D	0.4	(13)	0.4	42.2
Total	-		3.6	48.7
Tank-mixtures	-		75.7	92.4
TOTAL PESTICIDES	67.0 d/		791.1	704.8

a/ Data obtained from Appendix B.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.
d/ Data obtained from Table 3, acreage treated for any pest control.

Cabbage growers used approximately 127,000 pounds of herbicides in 66,000 single application acre-treatments. Trifluralin was used to treat about 34,000 acres and comprised about 55 percent of the herbicide acre-treatments. Regionally, trifluralin comprised from 55 to 80 percent of the herbicide acre-treatments with the exception of the Southeast where it was about 25 percent (Appendix B). Other important herbicides included nitrofen, bensulide, and DCPA.

Insect control is of primary importance for cabbage as indicated by 519,000 acre-treatments, 65 percent of all pesticide acre-treatments. Methomyl, Bacillus thuringiensis, and methamidphos were the primary insecticides applied by growers in single ingredient and tank-mix applications.

Maneb and chlorothalonil comprised about 85 percent of the 126,000 fungicide acre-treatments. Fenamiphos, a nematicide, was applied by Southeast growers i- 3,200 acre-treatments.

Cantaloups

An estimates 40,900 acres of cantaloups were planted in the Southeast, Midwest, and Southwest (Appendix A1). Southwest growers planted about 70 percent of the total cantaloup acreage. About 269,000 pounds of pesticides were used in 192,000 acre-treatments to treat 39,000 acres (Table 5). Tank-mixed pesticides comprised about 25,000 pounds of all pesticides used in 22,700 acre-treatments.

Cantaloup growers used bensulide or trifluralin for about 85 percent of the 16,900 herbicide acre-treatments applied in single ingredient applications. Each of these herbicides accounted for about one-half of the 11,500 acre-treatments used by Southwest growers (Appendix C3). Other herbicides used by cantaloup growers included naptalam, chloramben, and benefin.

Table 5. Cantaloups: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
			1,000	
Single Applications				
Herbicides				
Bensulide	6.1	(4)	7.9	26.3
Trifluralin	6.2	(3)	6.5	3.7
Naptalam	0.5	(22)	0.5	0.8
Chloramben	0.2	(53)	0.2	0.2
Benefin	0.2	(65)	0.2	0.1
Other	-		1.7	2.7
Total	-		16.9	33.8
Insecticides				
Methomyl	5.1	(6)	16.1	8.8
Dimethoate	5.7	(3)	14.1	4.9
Carbaryl	2.6	(8)	9.8	6.8
Endosulfan	1.2	(24)	5.0	2.3
Parathion	2.2	(12)	3.5	2.4
Other	-		17.0	17.0
Total	-		65.6	42.3
Fungicides				
Maneb	7.6	(2)	36.1	51.4
Chlorothalonil	4.5	(10)	17.1	17.6
Benomyl	5.8	(10)	13.5	19.2
Folpet	2.8	(1)	7.0	11.8
Captafol	1.6	(7)	6.8	11.2
Other	-		5.3	5.6
Total	-		85.8	116.8
Nematicides				
D-D	1.1	(1)	1.1	39.2
Ethylene dibromide	0.7	(14)	0.7	12.2
Total	-		1.8	51.4
Tank-mixtures	-		22.7	24.7
TOTAL PESTICIDES	39.0 c/		191.7	268.9

a/ Data obtained from Appendix C.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Data obtained from Table 3, acreage treated for any pest control.

Methomyl and dimethoate comprised nearly 50 percent of the 3-region total of 65,600 insecticide acre-treatments. Regionally, these two insecticides were mainly used in the Southwest where they comprised 60 percent of 42,000 insecticide acre-treatments. Southeast growers used methomyl for about 85 percent of 4,200 insecticide acre-treatments, and Midwest growers used carbaryl for about 50 percent of 18,500 acre-treatments.

Maneb was applied to a 3-region total of about 7,600 acres and accounted for about 40 to 45 percent of the fungicide total acre-treatments and total pounds used. Disease control is important for cantaloups as indicated by the use of fungicides relative to the other categories.

Nematicides were used in 630 acre-treatments in the Midwest and 1,080 acre-treatments in the Southwest.

Carrots

In 1979, an estimated 46,100 acres were planted in four regions, ranging from 29,100 acres in the Southeast to 2,000 acres in the Northeast (Appendix A1). A 4-region total of about 30,000 acres were treated using nearly 1.0 million pounds of pesticides in 288,400 acre-treatments (Table 6). Midwest growers applied pesticides on carrots more intensively accounting for 70 percent of the 4-region total of all pesticides on 30 percent of the carrot acres planted (Appendix A2). Carrot growers applied only about 2 percent of the pesticides used on the 12 vegetable crops.

Linuron was the primary herbicide used by growers in all four regions comprising about 75 percent of the total 60,300 herbicide acre-treatments and 66,900 pounds applied. Trifluralin was important also in the Northwest and Southwest regions, accounting for about 30 percent and 45 percent, respectively,

Table 6. Carrots: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
			1,000	
Single Applications				
Herbicides c/				
Linuron	24.8	(4)	44.2	51.0
Trifluralin	11.0	(3)	12.3	8.4
Nitrofen	1.5	(14)	2.6	3.9
Other	-		1.2	3.6
Total	-		60.3	66.9
Insecticides				
Parathion	6.5	(19)	30.6	10.0
Diazinon	6.6	(19)	22.0	10.4
Carbaryl	3.9	(27)	18.8	20.4
Methomyl	1.6	(1)	6.1	2.8
Other	-		8.9	7.8
Total	-		86.4	51.3
Fungicides				
Maneb	10.9	(11)	43.8	62.8
Chlorothalonil	4.2	(45)	22.1	35.7
Mancozeb	1.8	(38)	16.8	26.3
Copper sulfate	0.3	(62)	0.8	0.2
Zineb	0.2	(21)	0.2	0.3
Other	-		0.5	1.3
Total	-		84.2	126.4
Nematicides				
D-D	1.8	(34)	1.8	408.1
Other	-		1.3	64.0
Total	-		3.1	472.1
Rodenticides	0.1		0.2	d/
Tank-mixtures	-		54.2	245.3
TOTAL PESTICIDES	30.0 e/		288.4	962.0

a/ Data obtained from Appendix D.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Excludes 794,730 gallons of mineral spirits sprayed in 12,715 acre-treatments.
d/ Less than 50 pounds.
e/ Data obtained from Table 3, acerage treated for any pest control.

of each region's herbicide acre-treatments (Appendix D3 and D4). Mineral spirits were used by growers in three regions for spraying an estimated 0.8 million gallons in about 12,700 acre-treatments.

Parathion, diazinon, and carbaryl comprised nearly 85 percent of the 4-region total 86,400 insecticide acre-treatments used in single ingredient applications. Midwest growers accounted for about 85 percent of the 4-region total acre-treatments (Appendix D2). Other insecticides used by carrot growers included methomyl and methyl parathion.

Maneb comprised about 50 percent of the total fungicide acre-treatments and pounds used, and chlorothalonil and mancozeb most of the remainder.

Nematicides were used by Midwest and Southeast growers in 3,100 acre-treatments, and rodenticides used by Northwest growers in about 200 acre-treatments.

Celery

An estimated 15,400 acres of celery were planted in 1979 of which 600 acres were in the Northeast, 11,700 in the Southeast, and 3,100 ares in the Midwest (Appendix A1). A 3-region total of approximately 15,000 acres were treated using 642,000 of all pesticides in 572,000 acre-treatments (Table 7). Tank-mixed pesticides comprised about 225,000 pounds used in 33,000 acre-treatments.

Celery growers used CDEC in nearly 40 percent of the 3-region total 28,100 herbicide acre-treatments applied as single ingredients and in 50 percent of the total in the primary celery growing Southeast region (Appendix E). Midwest growers applied prometryne in about 60 percent of their single ingredient herbicide acre-treatments. Other herbicides used by celery growers included nitrofen and CDAA.

Table 7. Celery: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
			1,000	
Single Applications				
Herbicides				
CDEC	10.4	(5)	10.6	32.3
Prometryne	3.8	(25)	7.8	17.7
Nitrofen	3.4	(11)	5.9	4.6
CDAA	2.8	(45)	2.8	3.8
Other	-		1.0	1.9
Total	-		28.1	60.2
Insecticides				
Permethrin	9.3	(9)	73.0	8.3
Oxamyl	4.7	(28)	54.8	26.7
Bacillus thuringiensis	4.6	(21)	20.4	c/
Naled	2.1	(62)	16.3	7.5
Methomyl	1.7	(56)	13.9	9.9
Other	-		28.7	15.0
Total	-		207.1	67.4
Fungicides				
Chlorothalonil	8.6	(15)	94.9	62.7
Maneb	6.3	(28)	76.6	57.3
Copper hydroxide	4.6	(35)	68.9	110.8
Sulfur	1.2	(80)	17.6	13.7
Mancozeb	2.2	(51)	12.0	16.8
Other	-		34.6	28.4
Total	-		304.5	289.8
Tank-mixtures	-		32.6	224.9
TOTAL PESTICIDES	15.0 d/		572.3	642.3

a/ Data obtained from Appendix E.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.
d/ Data obtained from Table 3, acreage treated for any pest control.

Permethrin and oxamyl comprised about 35 percent and 25 percent, respectively, of the 3-region 206,800 insecticide acre-treatments applied in single ingredient applications. Southeast growers applied about 168,000 acre-treatments or about 80 percent of the 3-region total. Other important insecticides included Bacillus thuringiensis, naled, and methomyl.

Chlorothalonil, maneb, and copper hydroxide accounted for 80 percent of the 3-region 304,500 acre-treatments and 289,800 pounds used in single ingredient applications. Southeast celery growers used nearly 268,000 fungicide acre-treatments or nearly 90 percent of the 304,500 total (Appendix E2).

Cucumbers

In 1979, cucumber growers in four regions planted 126,300 acres of which 43 percent were planted in the Southeast and 37 percent in the Midwest (Appendix A1). Cucumbers grown for the processing market comprised 75 percent of the planted acreage. Approximately 117,000 acres were treated with any pesticide using nearly 259,000 pounds of pesticides in 138,100 acre-treatments (Table 8). Nearly 26,000 acre-treatments of pesticides were applied in tank-mixes using 86,000 pounds of pesticides.

Naptalam and bensulide each comprised nearly 45 percent of the approximately 34,000 herbicide acre-treatments. Midwest growers used about 22,600 or 65 percent of the total herbicide acre-treatments followed by the Southeast growers using 11,050 or about 30 percent (Appendix F3).

Cucumber growers used carbaryl for nearly 70 percent of the region's 49,000 insecticide acre-treatments. In the two primary cucumber growing regions, Southeast and Midwest growers used about 19,000 acre-treatments and 14,000 acre-treatments of carbaryl respectively. Other insecticides included endosulfan, diazinon, and methomyl.

Table 8. Cucumbers: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/	Acre-treatments	Pounds applied
	---------- 1,000 ----------		
Single Applications			
Herbicides			
Naptalam	15.2 (21)	15.2	30.3
Bensulide	14.6 (21)	15.0	41.1
Chloramben	2.3 (24)	2.3	3.6
Other	-	1.9	1.3
Total	-	34.4	76.4
Insecticides			
Carbaryl	13.6 (13)	33.7	31.9
Endosulfan	2.1 (21)	3.4	2.2
Diazinon	3.1 (5)	3.1	2.9
Methomyl	1.3 (80)	3.0	2.6
Other	-	6.2	3.8
Total	-	49.3	43.4
Fungicides			
Chlorothalonil	4.4 (34)	8.1	13.0
Copper sulfate	3.4 (14)	6.8	8.3
Maneb	2.0 (20)	6.4	9.3
Copper hydroxide	0.9 (62)	2.5	3.8
Mancozeb	0.6 (43)	2.1	4.5
Other	-	2.5	4.7
Total	-	28.3	43.7
Nematicides			
D-D	0.4 (16)	0.4	9.0
Tank-mixtures	-	25.7	86.3
TOTAL PESTICIDES	117.0 c/	138.1	258.8

a/ Data obtained from Appendix F.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Data obtained from Table 3, acreage treated for any pest control.

Chlorothalonil, copper sulfate, and maneb comprised about 75 percent of the 28,000 acre-treatments used.

Green Peas

An estimated 344,500 acres of green peas were planted in 1979 for the processing market in the Northeast, Midwest, and Northwest (Appendix A1). Midwest growers planted 58 percent of the total, Northeast growers about 2 percent, and Northwest growers planted the remaining 40 percent. About 296,000 acres were treated with any pesticide using 432,000 pounds in about 550,000 acre-treatments (Table 9). Tank-mixed pesticides comprised 38,500 acre-treatments using nearly 78,000 pounds of pesticides.

Trifluralin accounted for 118,000 or about 40 percent of the 285,000 herbicide acre-treatments applied as single ingredients. Other important herbicides included 4-MCPB and dinoseb.

Methomyl comprised nearly 60 percent of the 226,000 insecticide acre-treatments and about 50 percent of the 112,000 pounds used. Methomyl was used in about 90 percent of the 132,000 acre-treatments applied by Midwest growers and less than 10 percent of the 94,000 acre-treatments used by Northwest growers (Appendix G2 and G3). In the Northwest, Bacillus thuringiensis and parathion were the primary insecticides used accounting for 60 percent of the region's acre-treatments.

Diseases are generally not a problem for green pea growers as indicated by no use of fungicides reported by surveyed growers in 1979.

Lettuce

In 1979, an estimated total of 84,600 acres were planted for commercial production in the five regions, about 70 percent of which were planted by Southwest growers (Appendix A). Of 71,000 acres treated with any pesticide,

Table 9. Green peas: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/	Acre-treatments	Pounds applied
		1,000	
Single Applications			
Herbicides			
Trifluralin	110.1 (10)	118.2	55.7
4-MCPB	64.6 (9)	64.6	39.9
Dinoseb	39.6 (20)	50.2	106.9
MCPA	16.7 (2)	16.7	4.9
Dalapon	15.2 (18)	15.2	11.3
Other	-	20.1	23.7
Total	-	284.8	242.4
Insecticides			
Methomyl	74.3 (19)	128.9	59.6
Parathion	22.4 (28)	38.8	32.2
Bacillus thuringiensis	24.9 (52)	24.9	c/
Dimethoate	10.6 (32)	10.6	2.5
Carbaryl	9.7 (77)	9.7	8.8
Other	-	13.6	8.9
Total	-	226.4	112.0
Tank-mixtures	-	38.5	77.9
TOTAL PESTICIDES	296.0 d/	549.7	432.3

a/ Data obtained from Appendix G.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.
d/ Data obtained from Table 3, acreage treated for any pest control.

about 505,000 pounds of pesticides were used in nearly 509,000 acre-treatments (Table 10). Tank-mixed pesticides comprised 156,000 pounds in nearly 106,000 acre-treatments.

CDEC and benefin comprised about 35 percent and 25 percent, respectively, of the total 60,000 herbicide acre-treatments. CDEC accounted for about 65 percent of the herbicide 25,100 acre-treatments used by Southeast growers and benefin 55 percent of the nearly 26,000 acre-treatments used on lettuce in the Southwest (Appendix H2 and H5). Other herbicides used in lettuce include paraquat, pronamide, and bensulide.

Insect control is important for lettuce as indicated by the approximately 277,000 acre-treatments which accounted for about 55 percent of the total acre-treatments of all pesticides. Methomyl and permethrin comprised 22 to 26 percent of the insecticide acre-treatments. Methomyl accounted for about 30 percent of the 120,000 insecticide acre-treatments applied as single ingredients by Southwest growers, and permethrin about 50 percent of the 108,000 acre-treatments applied by Southeast growers. Some of the other important insecticides used by lettuce growers included Bacillus thuringiensis, mevinphos, and parathion.

Maneb and mancozeb comprised 50 percent and 39 percent, respectively, of 66,000 fungicide acre-treatments. In the two primary lettuce growing regions, maneb was used by Southwest growers for 90 percent of the region's 16,800 fungicide acre-treatments, and mancozeb by Southeast growers for about 60 percent of the 41,000 fungicide acre-treatments.

Onions

In 1979, an estimated 87,700 acres of onions were planted in four regions with the Southwest onion growers accounting for nearly 50 percent of the acreage

Table 10. Lettuce: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
			1,000	
Single Applications				
Herbicides				
CDEC	12.9	(12)	20.6	73.1
Benefin	13.9	(1)	14.3	13.7
Paraquat	7.6	(26)	9.4	4.1
Pronamide	6.7	(6)	6.7	7.1
Bensulide	5.3	(7)	5.5	26.1
Other	-		3.6	7.8
Total	-		60.0	132.0
Insecticides				
Methomyl	20.4	(6)	71.6	37.3
Permethrin	9.5	(7)	62.1	6.4
Bacillus thuringiensis	12.8	(6)	37.0	c/
Mevinphos	10.2	(5)	28.0	21.2
Parathion	5.4	(7)	16.7	11.3
Other	-		62.0	63.8
Total	-		277.3	140.0
Fungicides				
Maneb	8.4	(8)	33.1	33.4
Mancozeb	5.1	(15)	25.8	35.9
Copper hydroxide	0.7	(81)	4.1	3.4
Chlorothalonil	0.5	(44)	0.5	0.7
Other	-		2.4	3.3
Total	-		65.9	76.6
Tank-mixtures	-		105.5	156.4
TOTAL PESTICIDES	71.0 d/		508.7	505.0

a/ Data obtained from Appendix H.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.
d/ Data obtained from Table 3, acreage treated for any pest control.

(Appendix A1). Of 87,000 acres treated with any pesticide, approximately 2.4 million pounds of all pesticides were used in about 963,000 acre-treatments (Table 11). Tank-mixed pesticides were used to apply about 671,000 pounds in 213,000 acre-treatments.

Nitrofen and CDAA comprised about 35 percent and 25 percent, respectively, of the herbicide acre-treatments, and were the major herbicides used by Northeast and Midwest growers (Appendix I1 and I2). In the primary onion growing Southwest region, bensulide and DCPA comprised nearly 70 percent of the herbicide acre-treatments (Appendix I4).

Parathion accounted for about 45 percent of the 242,000 insecticide acre-treatments applied as single ingrdient applications, and was the major insecticide used by growers in each of the four onion growing regions. Other important insecticides included diazinon, methyl parathion, toxaphene, and carbaryl.

Maneb comprised about 55 percent of the 273,000 fungicide acre-treatments followed by chlorothalonil with nearly 30 percent (Table 11). Maneb was used by Southwest growers in about 90 percent of the 146,000 acre-treatments applied in single ingredient applications (Appendix I4).

About 17,000 acre-treatments of maleic hydrazide were used during the growing season for sprout control during storage.

Snap Beans

An estimated 246,600 acres of snap beans were planted in 1979 in the five regions, ranging from 118,600 ares planted by Midwest growers to 1,700 acres planted by Southwest growers (Appendix A1). About 85 percent of the total acreage was planted for the processing market. Of 244,000 acres treated with any

Table 11. Onions: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
			1,000	
Single Applications				
Herbicides				
Nitrofen	31.9	(6)	81.4	119.3
CDAA	21.1	(8)	52.7	346.9
DCPA	23.5	(3)	29.3	169.4
Chloropropham	10.6	(26)	18.4	55.8
Bensulide	14.8	(1)	16.3	58.8
Other	-		18.9	52.1
Total	-		217.1	802.3
Insecticides				
Parathion	27.9	(9)	103.2	52.4
Diazinon	10.5	(18)	35.1	20.9
Methyl parathion	5.1	(27)	27.3	11.6
Toxaphene	8.6	(4)	20.7	33.6
Carbaryl	3.9	(38)	15.0	12.8
Other	-		40.6	68.6
Total	-		241.9	199.9
Fungicides				
Maneb	25.9	(6)	152.0	254.7
Chlorothalonil	16.5	(13)	77.0	128.1
Mancozeb	7.7	(17)	25.3	49.2
Anilazine	1.9	(22)	3.6	4.7
Other	-		15.0	85.0
Total	-		272.9	521.7
Sprout control				
Maleic hydrazide	17.0	(9)	17.0	36.7
Tank-mixtures	-		213.2	671.2
TOTAL PESTICIDES	87.0 c/		963.0	2,426.6

a/ Data obtained from Appendix I.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Data obtained from Table 3, acreage treated for any pest control.

pesticide, nearly 1.5 million pounds of all pesticides were used in about 1.0 million acre-treatments (Table 12). Tank-mixed pesticides were used to apply about 437,000 pounds of all pesticides in 196,000 acre-treatments.

Dinoseb comprised about 40 percent of the 223,700 herbicide acre-treatments applied in single ingredient applications, followed by EPTC with 26 percent and trifluralin with 17 percent. Dinoseb was the major herbicide used in the primary snap bean growing Midwest region (Appendix J3).

Carbaryl and methomyl accounted for about 40 percent and 30 percent, respectively, of the 387,300 insecticide acre-treatments applied in single ingredient applications (Table 12). Other important insecticides use by snap bean growers included parathion, acephate, and fonofos.

Copper sulfate and copper hydroxide comprised nearly 60 percent and 30 percent, respectively, of the fungicides applied as single ingredient applications. Midwest growers had the greatest disease control problem, acounting for 174,000 acre-treatments or 90 percent of the 194,000 5-region total (Table 12 and Appendix J3).

Sweet Corn

In 1979, an estimated 555,900 acres were planted to sweet corn of which about 75 percent were planted for the processing market (Appendix A1). Midwest growers accounted for nearly 50 percent of the total planted acreage with nearly all of their production going to the processing market. Of 537,000 acres treated with any pesticide, nearly 3.6 million pounds of pesticides were used in 3.2 million acre-treatments (Table 13). About 900,000 pounds of pesticides were applied as tank-mixes in 475,000 acre-treatments.

Table 12. Snap beans: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/	Acre-treatments	Pounds applied
	---------- 1,000 ----------		
Single Applications			
Herbicides			
Dinoseb	83.8 (12)	86.4	187.7
EPTC	57.5 (9)	58.8	181.9
Trifluralin	37.5 (18)	37.5	16.8
Profluralin	5.0 (12)	5.0	2.5
Glyphosate	0.3 (51)	0.3	0.5
Other	-	35.6	112.5
Total	-	223.7	502.0
Insecticides			
Carbaryl	57.2 (9)	157.3	191.2
Methomyl	30.9 (23)	122.4	68.0
Parathion	18.6 (39)	44.8	16.5
Acephate	15.7 (31)	16.7	13.5
Fonofos	15.8 (1)	15.8	17.4
Other	-	30.3	25.4
Total	-	387.3	332.0
Fungicides			
Copper sulfate	33.8 (11)	111.8	93.2
Copper hydroxide	29.5 (54)	54.6	101.1
Benomyl	20.6 (21)	21.5	12.1
Other	-	6.0	7.5
Total	-	193.9	213.8
Tank-mixtures	-	195.9	437.3
TOTAL PESTICIDES	244.0 c/	1,000.8	1,485.1

a/ Data obtained from Appendix J.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Data obtained from Table 3, acreage treated for any pest control.

Table 13. Sweet corn: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
	1,000			
Single Applications				
Herbicides				
Atrazine	134.4	(8)	138.3	200.4
Alachlor	130.1	(11)	133.2	256.3
Cyanazine	41.2	(18)	41.2	111.0
Butylate	23.1	(24)	23.2	81.1
EPTC	22.1	(18)	22.1	89.6
Other	-		67.4	140.9
Total	-		425.5	879.3
Insecticides				
Methomyl	186.0	(5)	1,057.6	423.4
Carbaryl	139.5	(4)	359.5	507.2
Toxaphene	19.8	(27)	153.0	183.9
Parathion	39.7	(9)	109.1	55.3
Fonofos	54.7	(9)	61.9	71.2
Other	-		147.8	118.7
Total	-		1,888.8	1,359.7
Fungicides				
Mancozeb	18.6	(23)	228.0	254.0
Maneb	26.9	(23)	175.1	177.4
Other	-		1.7	1.6
Total	-		404.8	433.0
Other Reasons				
Avitrol	16.8	(42)	16.8	3.3
Tank-mixtures	-		475.0	879.1
TOTAL PESTICIDES	537.0 c/		3,210.9	3,554.4

a/ Data obtained from Appendix K.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Data obtained from Table 3, acreage treated for any pest control.

Atrazine and alachlor each accounted for about 30 percent of the herbicide acre-treatments. Other important herbicide uses included cyanazine, butylate, and EPTC.

Insect control accounted for nearly 1.9 million acre-treatments or approximately 60 percent of the total pesticide acre-treatments. Methomyl comprised about 55 percent of the 1.9 million total, and was the major insecticide used in every region but the Midwest (Appendix K). Sweet corn growers in the Midwest used carbaryl in about 45 percent of their total acre-treatments compared with about 25 percent for methomyl.

Southeast growers, who accounted for only about 10 percent of the planted acreage, applied nearly all of the 405,000 fungicide acre-treatments of single ingredient applications. Mancozeb and maneb comprised 56 percent and 43 percent, respectively, of the fungicide treatments.

Tomatoes

An estimated 124,300 acres of tomatoes were planted in 1979, about 60 percent of which were planted for the fresh market (Appendix A1). Southeast and Midwest growers accounted for about 43 percent and 35 percent, respectively, of the total acreage. All of the Southeast tomatoes were planted for the fresh market compared with only 16 percent in the Midwest. Tomato growers use pesticides more intensively relative to the other crops. Tomatoes accounted for only 6 percent of the planted acreage but 26 percent of the acre-treatments and 28 percent of the quantity used. An estimated 4.4 million pounds of all pesticides were used to treat 124,000 acres using 3.0 million acre-treatments (Table 14). Tank-mixed pesticides accounted for about 1.0 million pounds of pesticides applied in an estimated 293,500 acre-treatments.

Table 14. Tomatoes: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingredients	Acres treated b/		Acre-treatments	Pounds applied
	1,000			
Single Applications				
Herbicides				
Trifluralin	29.5	(7)	31.2	24.5
Paraquat	19.0	(10)	28.6	17.9
Metribuzin	22.8	(10)	28.4	12.8
Diphenamid	6.1	(21)	6.1	17.1
Pebulate	2.9	(26)	2.9	2.5
Other	-		6.9	10.8
Total	-		104.1	85.6
Insecticides				
Methomyl	37.3	(6)	341.3	168.5
Bacillus thuringiensis	21.2	(11)	179.0	c/
Methamidophos	28.1	(6)	124.3	112.8
Permethrin	16.1	(12)	90.4	5.4
Carbaryl	22.8	(7)	85.0	91.8
Other	-		283.9	140.7
Total	-		1,103.9	519.3
Fungicides				
Copper compounds	30.8	(8)	376.1	315.6
Mancozeb	23.8	(9)	330.2	381.5
Maneb	29.8	(9)	260.8	286.3
Chlorothalonil	36.1	(7)	256.7	258.6
Captafol	15.0	(12)	51.8	86.8
Other	-		210.9	255.1
Total	-		1,486.5	1,583.8
Nematicides				
Chloropicrin-methyl bromide	7.2	(15)	7.4	886.2
D-D	4.0	(39)	4.0	183.0
Ethylene dibromide	1.7	(50)	1.7	10.7
Other	-		0.7	120.4
Total	-		13.8	1,200.3
Other reasons				
Ethepron	14.1	(10)	15.3	20.2
Tank-mixtures	-		293.5	1,009.2
TOTAL PESTICIDES	124.0 d/		3,017.1	4,418.3

a/ Data obtained from Appendix L.

b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

d/ Data obtained from Table 3, acrege treated for any pest control.

Tomato growers used 104,000 single ingredient acre-treatments for weed control, or only 3 percent of the 3.0 million acre-treatments of all pesticides. Paraquat was the major herbicide used by Southeast tomato growers and paraquat and metribuzin the major herbicides used by Midwest growers (Appendix L2 and L3).

Methomyl, Bacillus thuringiensis, and methamidophos comprised about 60 percent of the 1.1 million insecticide acre-treatments used by growers in the five regions. These three insecticides accounted for about 65 percent of the 935,000 acre-treatments used by Southeast growers. Carbaryl comprised about 50 percent of the estimated 122,000 acre-treatments reported by Midwest growers.

Disease control is important for tomato production as indicated by fungicides comprising about 1.5 million acre-treatments, about one-half of the 3.0 million total pesticide acre-treatments. Copper compounds, mancozeb, maneb, and chlorothalonil accounted for about 80 percent of the fungicide acre-treatments and quantities used.

Growers applied nematicides using about 1.2 million pounds in 14,000 acre-treatments. Ethepron, a growth regulator, was used for about 15,000 acre-treatments.

Watermelons

In 1979, approximately 166,300 acres of watermelons were planted, of which Southeast growers accounted for 63 percent, Southwest growers 34 percent, and Midwest growers the remaining 3 percent (Appendix A1). Watermelon growers use pesticides less intensively relative to other crops. Watermelons accounted for 9 percent of the 12 vegetable planted acreage but only 3 percent of the acre-treatments and 2 percent of the quantity applied.

An estimated 367,000 pounds of all pesticides were used to treat 156,000 acres using 336,000 acre-treatments (Table 15). Tank-mixes were used to apply about 31,000 pounds in 17,000 acre-treatments.

Trifluralin accounted for 11,000 of the 30,000 herbicide acre-treatments applied in single ingredient applications, and was the major herbicide used by Southwest growers (Appendix M2). Other important herbicides included bensulide and DCPA.

Methomyl and parathion were used in nearly 50 percent of the 91,000 insecticide acre-treatments applied as single ingredients. Methomyl and dimethoate were the primary insecticides used by Southeast growers, and parathion and carbaryl the primary insecticides used by Southwest growers.

Disease control accounted for nearly 200,000 acre-treatments applied in single ingredient applications of 60 percent of the total acre-treatments of all pesticides. Maneb and chlorothalonil involved about 40 percent and 30 percent, respectively, of the fungicide acre-treatments.

Table 15. Watermelons: Acres treated, acre-treatments, and quantities applied, 1979 a/

Active ingrdients	Acres treated b/		Acre-treatments	Pounds applied
			1,000	
Single Applications				
Herbicides				
Trifluralin	9.3	(6)	11.0	5.9
Bensulide	3.6	(14)	5.0	12.3
DCPA	0.8	(89)	4.8	2.4
Naptalam	0.8	(25)	0.8	1.3
Butralin	0.8	(23)	0.8	1.6
Other	-		7.5	5.4
Total	-		30.0	28.9
Insecticides				
Methomyl	5.4	(5)	23.5	19.3
Parathion	7.0	(14)	19.8	9.9
Carbaryl	6.1	(14)	12.8	11.8
Dimethoate	3.1	(22)	11.9	4.6
Bacillus thuringiensis	2.3	(17)	8.9	c/
Other	-		14.4	16.3
Total	-		91.3	61.9
Fungicides				
Maneb	17.3	(8)	79.5	106.7
Chlorothalonil	22.7	(8)	61.9	63.6
Benomyl	7.3	(17)	15.9	12.7
Captafol	5.2	(22)	11.6	16.1
Mancozeb	2.6	(29)	10.1	16.8
Other	-		18.0	22.8
Total	-		197.1	238.8
Nematicides				
Ethylene dibromide	0.5	(22)	0.5	6.8
Tank-mixtures	-		17.0	30.5
TOTAL PESTICIDES	156.0 d/		335.9	366.9

a/ Data obtained from Appendix M.
b/ Coefficients of variation for acres treated (in percent) are in parentheses; acres treated not summed to avoid double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.
d/ Data obtained from Table 3, acreage treated for any pest control.

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Table A1. Acres planted in 1979, fresh and processing market, by region a/

Market	Northeast	Southeast	Midwest	Northwest	Southwest	Total
	1,000 acres					
Cabbage						
Fresh	14.4	29.7	10.8	1.7	23.7	80.8
Processing	3.7	-	4.8	-	b/	8.5
Total	18.1	29.7	15.6	1.7	23.7	88.8
Cantaloups						
Fresh	-	7.9	3.9	-	29.1	40.9
Carrots						
Fresh and processing	2.0	-	13.7	6.7	23.7	46.1
Celery						
Fresh	.6	11.7	3.1	-	. -	15.4
Cucumbers						
Fresh	4.7	14.5	2.0	-	10.9	32.1
Processing	1.5	40.2	44.7	-	7.8	94.2
Total	6.2	54.7	46.7	-	18.7	126.3
Green Peas						
Processing	6.3	-	198.8	139.4	-	344.5
Lettuce						
Fresh	7.5	14.1	3.7	1.3	58.0	84.6
Onions						
Fresh and processing	15.7	-	10.5	19.0	42.5	87.7
Snap beans						
Fresh	14.0	17.1	4.3	-	-	35.4
Processing	49.2	5.2	114.3	40.8	1.7	211.2
Total	63.2	22.3	118.6	40.8	1.7	246.6
Sweet corn						
Fresh	34.5	63.3	31.2	3.9	4.9	137.8
Processing	21.6	-	287.5	109.0	-	418.1
Total	56.1	63.3	318.7	112.9	4.9	555.9

- continued

Table A1. Acres planted in 1979, fresh and processing market, by region a/ --continued

Market	Northeast	Southeast	Midwest	Northwest	Southwest	Total
	1,000 acres					
Tomatoes						
Fresh	10.3	53.1	6.8	-	7.0	77.2
Processing	7.3	-	36.5	-	3.3	47.1
Total	17.6	53.1	43.3	-	10.3	124.3
Watermelons						
Fresh	-	104.3	5.2	-	56.8	166.3
12 crops						
Fresh and processing	193.3	361.1	781.8	321.8	269.4	1,927.4

a/ Vegetables, 1980 Annual Summary, ESS, USDA, Vg 1-2(80), December 1980.
b/ Less than 50 acres.

Table A2. Regional distribution: Proportion of acres planted, acre-treatments, and quantity of all pesticides used, 12 crops, by region, 1979

Item	Northeast	Southeast	Midwest	Northwest	Southwest	Total
Share of planted acreage by crop a/	Percent of regional total					
Cabbage	20	33	18	2	27	100
Cantaloups	-	19	10	-	71	100
Carrots	4	-	30	15	51	100
Celery	4	76	20	-	-	100
Cucumbers	5	43	37	-	15	100
Green peas	2	-	58	40	-	100
Lettuce	9	17	4	2	69	100
Onions	18	-	12	22	48	100
Snap beans	26	9	48	17	1	100
Sweet corn	10	11	57	20	1	100
Tomatoes	14	43	35	-	8	100
Watermelon	-	63	3	-	34	100
Total	10	19	40	17	14	100
Share of acre-treatments by crop b/	Percent of regional total					
Cabbage	14	27	26	c/	32	100
Cantaloups	-	7	27	-	66	100
Carrots	1	-	70	5	23	100
Celery	4	80	17	-	-	100
Cucumbers	3	40	55	-	3	100
Green peas	1	-	62	37	-	100
Lettuce	10	35	5	c/	50	100
Onions	27	-	34	10	29	100
Snap beans	8	2	80	10	c/	100
Sweet corn	5	49	37	8	2	100
Tomatoes	4	77	19	-	1	100
Watermelon	-	57	7	-	36	100
Total	7	43	34	6	10	100
Share of quantity of pesticide use by crop b/	Percent of regional total					
Cabbage	14	23	21	c/	42	100
Cantaloups	-	5	26	-	69	100
Carrots	c/	-	77	1	22	100
Celery	5	54	41	-	-	100
Cucumbers	4	28	64	-	3	100
Green peas	1	-	43	56	-	100

- continued

Table A2. Regional distribution: Proportion of planted acres, acres-treatments, and quantity of all pesticides used, 12 crops, by region, 1979 - continued

Item	Northeast	Southeast	Midwest	Northwest	Southwest	Total
Lettuce	14	28	5	c/	53	100
Onions	25	-	31	22	22	100
Snap beans	11	1	75	13	c/	100
Sweet corn	5	36	48	10	1	100
Tomatoes	3	75	21	-	1	100
Watermelon	-	56	9	-	35	100
Total	8	34	38	8	11	100

a/ Vegetables, 1980 Annual Summary, ESS, USDA, Vg 1-2(80), December 1980.
b/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
c/ Less than 0.5 percent.

Table A3. Crop distribution: Proportion of acres planted, acre-treatments, and quantity of all pesticides used, 12 crops, by region, 1979

Item	Northeast	Southeast	Midwest	Northwest	Southwest	Total
Share of acreage by crop a/	Percent of crop total					
Cabbage	9	8	2	1	9	5
Cantaloups	-	2	c/	-	11	2
Carrots	1	-	2	2	9	2
Celery	c/	3	c/	-	-	1
Cucumbers	3	15	6	-	7	7
Green peas	3	-	25	43	-	18
Lettuce	4	4	1	1	22	4
Onions	8	-	1	6	16	5
Snap beans	33	6	15	13	1	13
Sweet corn	29	18	41	35	2	29
Tomatoes	9	15	6	-	4	6
Watermelon	-	29	1	-	21	9
Total	100	100	100	100	100	100
Share of acre-treatments by crop b/	Percent of crop total					
Cabbage	14	4	5	c/	21	7
Cantaloups	-	c/	1	-	10	2
Carrots	c/	-	5	2	6	3
Celery	3	9	2	-	-	5
Cucumbers	c/	1	2	-	c/	1
Green peas	1	-	9	30	-	5
Lettuce	6	4	1	c/	22	4
Onions	32	-	8	14	24	8
Snap beans	9	c/	21	15	c/	9
Sweet corn	20	31	30	38	4	28
Tomatoes	15	46	14	-	2	26
Watermelon	-	4	1	-	10	3
Total	100	100	100	100	100	100
Share of quantity of pesticide use by crop b/	Percent of crop total					
Cabbage	7	3	2	c/	17	4
Cantaloups	-	c/	1	-	11	2
Carrots	c/	-	12	1	12	6
Celery	2	6	4	-	-	4
Cucumbers	1	1	3	-	c/	2
Green peas	c/-	-	3	18	-	3

- continued

Table A3. Crop distribution: Proportion of acres planted, acres-treatments, and quantity of all pesticides used, 12 crops, by region, 1979 - continued

Item	Northeast	Southeast	Midwest	Northwest	Southwest	Total
Lettuce	5	3	c/	c/	16	3
Onions	46	-	12	40	32	15
Snap beans	12	c/	18	15	c/	9
Sweet corn	13	23	28	26	3	22
Tomatoes	12	60	15	-	1	28
Watermelon	-	4	1	-	8	2
Total	100	100	100	100	100	100

a/ Vegetables, 1980 Annual Summary, ESS, USDA, Vg 1-2(80), December 1980.
b/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
c/ Less than 0.5 percent.

Table B1. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
DCPA	1,700	2,320	1.3	8.6	11.8	20,090
Nitrofen	990	1,000	1.0	2.0	2.1	2,090
Trifluralin	6,880	6,880	1.0	.7	.7	5,060
Other	-	430	-	3.5	-	1,530
Total	-	10,630	-	2.7	-	28,770
Insecticides						
Azinphosmethyl	1,020	2,860	2.8	.5	1.4	1,440
Bacillus thuringiensis c/	2,120	3,940	1.8	-	-	-
Diazinon	1,760	2,260	1.2	.7	.9	1,670
Endosulfan	3,200	5,470	1.7	.7	1.2	4,060
Fonofos	280	280	1.0	1.6	1.6	470
Meta-systox	2,080	3,260	1.5	.2	.4	900
Methamidophos	4,720	10,420	2.2	.9	2.1	10,000
Methomyl	3,410	12,330	3.6	.5	1.9	6,790
Mevinphos	1,900	3,090	1.6	.3	.5	1,100
Parathion	3,930	9,760	2.4	.6	1.5	6,050
Other	-	22,130	-	.1	-	1,560
Total	-	75,800	-	.4	-	34,040
Fungicides						
Chlorothalonil	1,670	4,070	2.4	1.0	2.4	4,170
Copper hydroxide	730	1,430	1.9	1.2	2.5	1,840
Maneb	1,610	3,290	2.0	1.6	3.4	5,580
Zineb	230	450	1.9	1.5	2.9	680
Other	-	100	-	.9	-	90
Total	-	9,340	-	1.3	-	12,360
Tank-mixes						
Azinphosmethyl	140	140	1.0	.5	.5	70
+ meta-systox				.3	.3	40
Azinphosmethyl	690	1,960	2.8	.2	.6	450
+ parathion				.5	1.4	980
Azinphosmethyl + fungicides + insecticides	200	330	1.6	1.9	3.1	630

-- continued

Table B1. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Bacillus thuringiensis c/ + fungicides + insecticides	3,080	8,800	2.8	.8	2.3	7,370
Chlorothalonil + insecticides	570	570	1.0	2.1	2.1	1,240
Copper hydroxide	210	670	3.1	1.4	4.4	940
+ sulfur				.8	2.5	530
DCPA	210	210	1.0	5.9	5.9	1,250
+ nitrofen				4.0	4.0	830
Endosulfan	1,160	2,030	1.7	.6	1.1	1,360
+ parathion				.8	1.4	1,630
Maneb	290	660	2.2	1.5	3.6	1,050
+ methamidophos				1.0	2.3	660
+ parathion				.5	1.1	330
Methomyl + fungicides + insecticides	170	580	3.4	1.6	5.5	950
Other	-	1,670	-	1.1	-	1,980
Total	-	17,620	-	1.2	-	22,290
TOTAL PESTICIDES	-	113,390	-	.8	-	97,460

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table B2. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979. a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Insecticides						
Azinphosmethyl	310	630	2.0	0.4	1.0	310
Bacillus thuringiensis c/	7,040	23,090	3.2	-	-	-
Carbaryl	2,250	8,720	3.8	1.0	4.1	9,270
Diazinon	1,200	1,200	1.0	0.5	0.5	700
Endosulfan	80	340	4.2	0.8	3.6	290
Methamidophos	10,600	28,710	2.7	0.7	2.0	21,840
Methomyl	14,110	65,390	4.6	0.6	2.9	41,200
Parathion	2,390	5,850	2.4	0.3	0.9	2,240
Phosdrin	120	250	2.0	0.4	1.0	120
Phosphamidon	880	880	1.0	1.0	1.0	880
Other	-	2,250	-	0.8	-	1,860
Total	-	137,310	-	0.5	-	78,710
Fungicides						
Chlorothalonil	3,990	17,600	4.4	.4	2.0	8,200
Mancozeb	690	3,300	4.7	1.1	5.6	3,890
Maneb	4,960	20,500	4.1	1.0	4.1	20,790
Metiram	670	2,020	3.0	.2	0.6	420
Other	-	2,020	-	0.7	-	1,480
Total	-	45,440	-	0.7	-	34,780
Herbicides						
CDEC	2,450	2,520	1.0	1.9	1.9	4,830
DCPA	2,860	2,860	1.0	4.1	4.1	11,980
Nitrofen	4,010	5,000	1.2	1.5	1.9	7,960
Trifluralin	3,910	4,140	1.0	0.5	0.5	2,100
Other	-	1,400	-	1.0	-	1,420
Total	-	15,920	-	1.7	-	28,290
Nematicides						
Fenamiphos	3,180	3,180	1.0	2.0	2.0	6,490
Total	-	3,180	-	2.0	-	6,490

- continued

Table B2. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/ - continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures						
Bacillus thuringiensis c/ + fungicides	310	2,160	6.9	0.1	0.4	150
Bacillus thuringiensis c/ + insecticides	560	560	1.0	2.6	2.6	1,480
Bacillus thuringiensis c/	40	350	8.7	-	-	-
+ dimethoate				0.2	2.5	100
Bacillus thuringiensis c/	1,250	4,610	3.6	-	-	-
+ methomyl				0.3	0.8	1,000
Maneb	120	270	2.2	1.1	2.6	320
+ methomyl				0.3	0.8	100
Methomyl + fungicides	1,200	3,780	3.1	0.7	2.3	2,820
Other	-	2,500	-	2.0	-	5,000
Total	-	14,230	-	0.7	-	10,950
TOTAL PESTICIDES	-	216,080	-	0.7	-	159,220

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table B3. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/ - continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Nitrofen	2,770	3,930	1.4	2.4	3.5	9,760
Trifluralin	11,690	11,760	1.0	.6	.6	7,220
Other	-	820	-	2.9	-	2,430
Total	-	16,510	-	1.1	-	19,410
Insecticides						
Azinphosmethyl	2,710	7,720	2.8	.8	2.3	6,250
Bacillus thuringiensis c/	5,910	26,140	4.4	-	-	-
Carbaryl	2,970	6,400	2.1	1.0	2.1	6,480
Demeton	480	880	1.8	.3	.7	340
Diazinon	2,900	4,340	1.4	.8	1.3	3,830
Dimethoate	800	1,620	2.0	.2	.5	460
Endosulfan	1,090	2,450	2.2	.6	1.4	1,530
Methamidophos	7,990	18,040	2.2	.7	1.7	14,260
Methomyl	6,150	50,140	8.1	.6	5.0	30,780
Mevinphos	920	2,140	2.3	.6	1.4	1,310
Parathion	5,370	21,280	3.9	.3	1.3	7,110
Other	-	4,820	-	.8	-	4,030
Total	-	145,970	-	.5	-	76,380
Fungicides						
Chlorothalonil	2,080	7,610	3.6	0.7	2.6	5,610
Copper hydroxide	470	860	1.8	1.2	2.2	1,080
PCNB	740	740	1.0	1.2	1.2	900
Sulfur	410	2,020	4.9	2.6	12.8	5,260
Zineb	580	4,620	7.9	.3	2.3	1,390
Other	-	720	-	1.2	-	900
Total	-	16,570	-	.9	-	15,140
Tank mixtures						
Azinphosmethyl + toxaphene	740	740	1.0	.7	.7	550
Bacillus thuringiensis c/ + fungicides + insecticides	360	400	1.1	2.0	2.2	810

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Table B3. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Bacillus thuringiensis c/ + carbaryl	110	870	7.9	-	-	-
				.9	7.1	780
Bacillus thuringiensis c/	60	460	7.6	-	-	-
+ carbaryl				.8	5.8	350
+ methomyl				.7	5.5	330
Bacillus thuringiensis c/	40	140	3.5	-	-	-
+ chlorothalonil				.9	3.0	120
Bacillus thuringiensis c/	110	640	5.8	-	-	-
+ maneb				.8	4.6	510
+ ethylan				-	.1	10
+ mevinphos				.3	1.5	160
Bacillus thuringiensis c/	800	2,900	3.6	-	-	-
+ methomyl				1.4	5.0	4,020
Bacillus thuringiensis c/	4,220	13,620	3.2	-	-	-
+ oils				-	.1	430
Bacillus thuringiensis c/	600	2,260	3.7	-	-	-
+ fungicides				.1	.2	130
+ parathion				.2	.8	470
Carbaryl	190	750	3.9	.7	3.0	570
+ copper sulfate				.4	1.4	270
+ maneb				1.6	6.4	1,210
Carbaryl + fungicides	10	20	2.0	2.0	4.0	40

-- continued

Table B3. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Per acre: Total
Tank mixtures (cont'd)						
Carbaryl + fungicides + insecticides	280	520	1.8	.3	2.4	690
Fonofos	40	40	1.0	1.7	1.7	70
+ trifluralin				1.0	1.0	40
Methomyl	120	700	5.8	.1	.6	80
+ maneb				.8	4.8	570
Parathion	460	3,680	8.0	.2	2.2	1,040
+ toxaphene				6.0	48.0	22,100
Other	-	1,280	-	1.7	-	2,290
Total	-	29,020	-	1.3	-	38,750
TOTAL PESTICIDES	-	208,070	-	.7	-	149,680

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table R4. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Nitrofen	60	70	1.1	2.1	2.5	150
Trifluralin	350	350	1.0	.4	.4	160
Other	-	20	-	3.5	-	70
Total	-	440	-	.8	-	380
Insecticides						
Azinphosmethyl	100	150	1.5	.4	.7	70
Diazinon	120	190	1.5	1.3	2.0	250
Endosulfan	130	380	2.9	.3	1.1	150
Naled	140	280	2.0	.4	.9	130
Other	-	110	-	.5	-	60
Total	-	1,110	-	.5	-	660
Fungicides						
Chlorothalonil	40	40	1.0	.7	.7	30
Tank-mixes						
Azinphosmethyl + insecticides	90	190	2.1	1.2	2.6	240
Methomyl	20	40	2.0	.5	1.0	20
+ meta-systox				.5	1.0	20
Other	-	20	-	1.0	-	20
Total	-	250	-	1.2	-	300
TOTAL PESTICIDES	-	1,840	-	.7	-	1,370

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table B5. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ b/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	3,350	5,480	1.6	3.8	6.3	21,190
DCPA	3,280	3,690	1.1	4.0	4.5	14,770
Nitrofen	500	680	1.3	2.2	3.0	1,510
Trifluralin	11,060	12,780	1.1	.9	1.0	11,800
Other	-	130	-	2.7	-	360
Total	-	22,760	-	2.1	-	49,630
Insecticides						
Bacillus thuringiensis c/	6,910	39,370	5.6	-	-	-
Disulfoton	6,100	10,020	1.6	3.0	4.9	30,250
Methamidophos	9,340	24,300	2.6	1.0	2.7	26,040
Methomyl	12,060	55,560	4.6	.5	2.3	28,020
Monocrotophos	1,480	5,460	3.6	.3	1.2	1,780
Permethrin	3,510	19,900	5.6	.3	1.7	6,160
Other	-	3,830	-	2.7	-	10,670
Total	-	158,440	-	.6	-	102,920
Fungicides						
Chlorothalonil	700	1,790	2.5	1.4	3.7	2,600
Maneb	8,180	51,290	6.2	1.5	9.4	77,630
Methomyl	420	840	2.0	.4	.9	380
Other	-	320	-	.6	-	210
Total	-	54,240	-	1.4	-	80,820
Nematicides						
D-D	340	340	1.0	123.8	123.8	42,120
Tank-mixes						
Bacillus thuringiensis c/ + fungicides + insecticides	4,990	5,810	1.1	1.0	1.2	6,080
Bacillus thuringiensis c/ + insecticides	820	970	1.1	.5	.6	530
Endosulfan	400	720	1.8	.4	.7	290
+ methyl parathion				.1	.4	140

— continued

Table B5. Cabbage: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Maneb + methamidophos	200	870	4.3	1.5 .9	6.9 3.9	1,390 780
Maneb + permethrin	130	1,520	11.6	1.6 .2	18.7 2.6	2,440 340
Methamidophos + insecticides	670	1,020	1.5	1.6	2.4	1,670
Methomyl + insecticides	810	1,070	1.3	2.0	2.7	2,240
Methyl parathion + toxaphene	420	840	2.0	.7 .7	1.5 1.5	630 630
Parathion + toxaphene	330	950	2.8	.9 .7	2.6 2.2	880 740
Other	-	780	-	1.7	-	1,360
Total	-	14,550	-	1.3	-	20,140
TOTAL PESTICIDES	-	250,330	-	1.1	-	295,630

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table C1. Cantaloups: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Benefin	130	130	1.0	0.6	0.6	90
Bensulide	50	50	1.0	3.4	3.4	170
Other	-	990	-	1.1	-	1,100
Total	-	1,170	-	1.1	-	1,360
Insecticides						
Carbaryl	230	260	1.1	0.7	0.8	190
Methomyl	970	3,480	3.5	0.4	1.6	1,560
Parathion	20	20	1.0	-	-	-
Other	-	430	-	0.7	-	330
Total	-	4,190	-	0.4	-	2,080
Fungicides						
Chlorothalonil	1,710	6,070	3.5	1.3	4.8	8,310
Folpet	280	460	1.6	0.2	0.4	120
Maneb	140	190	1.3	3.0	4.1	580
Other	-	690	-	0.8	-	580
Total	-	7,410	-	1.2	-	9,590
Tank mixtures						
Benomyl	100	100	1.0	1.5	1.5	150
+ chlorothalonil				1.2	1.2	120
Other	-	40	-	4.7	-	190
Total	-	140	-	3.2	-	460
TOTAL PESTICIDES	-	12,910	-	1.0	-	13,490

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.

Table C2. Cantaloups: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	1,130	2,080	1.8	1.4	2.6	2,970
Chloramben	180	180	1.0	.8	.8	160
Naptalam	440	440	1.0	1.7	1.7	770
Trifluralin	830	830	1.0	.4	.4	380
Other	-	520	-	2.7	-	1,430
Total	-	4,050	-	1.8	-	5,710
Insecticides						
Carbaryl	2,290	9,550	4.1	.6	2.8	6,570
Demeton	200	490	2.4	.3	.7	150
Dicofol	150	440	2.9	.3	1.0	150
Endosulfan	1,120	4,950	4.4	.4	2.0	2,310
Malathion	430	690	1.6	1.0	1.7	740
Methoxychlor	240	520	2.1	.6	1.3	330
Parathion	270	430	1.5	-	.1	40
Other	-	1,460	-	3.0	-	4,460
Total	-	18,530	-	.7	-	14,750
Fungicides						
Benomyl	460	2,230	4.8	.2	1.1	550
Captafol	530	2,540	4.7	1.5	7.2	3,840
Chlorothalonil	2,020	8,340	4.1	.8	3.7	7,500
Copper hydroxide	650	1,680	2.5	1.1	2.8	1,870
Mancozeb	340	910	2.6	1.4	3.8	1,310
Maneb	470	2,470	5.2	1.5	8.3	3,920
Other	-	1,640	-	.9	-	1,490
Total	-	19,810	-	1.0	-	20,480
Nematicides						
D-D	10	10	1.0	28.0	28.0	280
Ethylene dibromide	620	620	1.0	19.6	19.6	12,190
Total	-	630	-	19.7	-	12,470
Tank mixtures						
Alanap + inseciticides + fungicides	270	390	1.4	11.8	17.1	4,620
Azinphosmethyl + fungicides + insecticides	180	270	1.5	2.4	3.7	670

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Table C2. Cantaloups: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Benomyl	160	320	2.0	.2	.5	80
+ chlorothalonil				.5	.9	150
Benomyl + insecticides + fungicides	50	140	2.8	1.8	5.2	260
Captafol	40	70	1.7	1.4	2.5	100
+ maneb				1.7	3.0	120
Carbaryl + fungicides + insecticides	480	1,890	3.9	1.9	7.6	3,650
Chlorothalonil	190	930	4.8	1.8	8.8	1,680
+ endosulfan				.5	2.5	470
Copper compounds + insecticides + fungicides	210	680	3.2	3.5	11.3	2,380
Dichlone	70	70	1.0	.1	.1	10
+ sulfur				1.6	1.6	110
Metallic copper	160	220	1.3	-	.1	20
+ sulfur				1.1	1.4	230
Naptalam	130	130	1.0	1.8	1.8	240
+ bensulide				4.8	4.8	620
Sulfur	40	40	1.0	1.0	1.0	40
+ zineb				1.0	1.0	40
Other	-	580	-	2.0	-	1,180
Total	-	5,730	-	2.9	-	16,670
TOTAL PESTICIDES	-	48,750	-	1.4	-	70,080

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table C3. Cantaloups: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	4,880	5,740	1.1	4.0	4.7	23,150
Trifluralin	5,350	5,670	1.0	.5	.6	3,280
Other	-	110	-	.8	-	90
Total	-	11,520	-	2.3	-	26,520
Insecticides						
Bacillus thuringiensis c/	860	2,380	2.7	-	-	-
Diazinon	520	520	1.0	1.9	1.9	990
Dicofol	1,770	1,770	1.0	.9	.9	1,620
Dimethoate	5,630	14,020	2.4	.3	.8	4,900
Methomyl	4,130	12,570	3.0	.5	1.7	7,200
Mevinphos	420	1,250	2.9	.2	.6	280
Parathion	1,860	3,040	1.6	.7	1.2	2,330
Other	-	6,790	-	1.1	-	7,660
Total	-	42,340	-	.5	-	24,980
Fungicides						
Benomyl	5,250	11,200	2.1	1.6	3.5	18,590
Captafol	1,050	4,180	3.9	1.7	6.9	7,340
Chlorothalonil	730	2,700	3.6	.6	2.4	1,760
Copper sulfate	170	170	1.0	.8	.8	140
Folpet	2,480	6,540	2.6	1.7	4.6	11,620
Maneb	6,910	33,430	4.8	1.4	6.7	46,900
Other	-	20	-	1.0	-	20
Total	-	58,240	-	1.4	-	86,370
Nematicides						
D-D	1,080	1,080	1.0	35.9	35.9	38,860
Tank-mixes						
Bacillus thuringiensis c/	1,100	1,100	1.0	-	-	-
+ oils				.1	.1	70
Benomyl	470	470	1.0	.2	.2	120
+ dicofol				.6	.6	300
Benomyl	530	530	1.0	.5	.5	310
+ folpet				.9	.9	500

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Table C3. Cantaloups: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Benomyl	390	770	1.9	.2	.4	190
+ maneb				.4	.8	310
+ mevinphos				.1	.2	90
Chlorothalonil	130	130	1.0	.9	.9	120
+ methyl parathion				.5	.5	70
Dicofol	500	1,490	2.9	.1	.5	280
+ toxaphene				.1	.2	80
Methyl parathion	470	470	1.0	3.0	3.0	1,410
+ parathion				6.0	6.0	2,820
Naptalam	100	100	1.0	1.0	1.0	100
+ chloramben				.4	.4	50
Other	-	440	-	1.7	-	750
Total	-	5,500	-	1.3	-	7,570
TOTAL PESTICIDES	-	118,680	-	1.5	-	184,300

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because *Bacillus thuringiensis* is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table D1. Carrots: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides c/						
Limuron	460	850	1.8	.7	1.3	640
Other	-	60	-	.8	-	50
Total	-	910	-	.8	-	690
Insecticides						
Parathion	400	1,120	2.8	.5	1.6	660
Other	-	40	-	1.0	-	40
Total	-	1,160	-	.6	-	700
Fungicides						
Chlorothalonil	10	30	3.0	.6	2.0	20
Other	-	10	-	1.0	-	10
Total	-	40	-	.7	-	30
Tank-mixes						
Carbaryl	40	200	5.0	.8	4.0	160
+ mancozeb				.5	2.5	100
Maneb	330	1,000	3.0	1.6	4.8	1,600
+ parathion				.4	1.3	440
Other	-	10	-	1.0	-	10
Total	-	1,210	-	1.9	-	2,310
TOTAL PESTICIDES	-	3,320	-	1.1	-	3,730

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Excludes 23,340 gallons of mineral spirits used in 444 acre-treatments.

Table D2. Carrots: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides c/						
Linuron	12,370	26,010	2.1	1.3	2.7	34,170
Nitrofen	1,180	2,090	1.7	1.7	3.0	3,610
Other	-	620	-	4.4	-	2,740
Total	-	28,720	-	1.4	-	40,520
Insecticides						
Carbaryl	3,700	18,560	5.0	1.0	5.4	20,270
Diazinon	4,270	19,390	4.5	.4	1.9	8,390
Malathion	390	1,160	2.9	.6	2.0	810
Methomyl	300	3,600	12.0	.4	5.4	1,620
Methyl parathion	360	1,810	5.0	.1	.6	230
Parathion	5,000	27,530	5.5	.2	1.4	7,420
Other	-	2,100	-	2.0	-	4,280
Total	-	74,150	-	.5	-	43,020
Fungicides						
Chlorothalonil	4,170	22,030	5.2	1.6	8.5	35,590
Copper sulfate	260	730	2.8	.2	.7	190
Mancozeb	1,720	16,740	9.7	1.5	15.2	26,250
Maneb	2,370	8,100	3.4	1.1	4.0	9,690
Other	-	310	-	1.6	-	520
Total	-	47,910	-	1.5	-	72,240
Nematicides						
D-D	930	930	1.0	385.2	385.2	358,280
Tank mixtures						
Carbaryl	180	1,050	5.8	.5	3.1	560
+ copper complexes				2.0	11.7	2,100
Carbaryl	70	790	11.2	1.4	16.2	1,140
+ mancozeb				.3	3.0	210
Carbaryl						
+ fungicides						
+ insecticides	2,100	9,800	4.6	3.2	15.3	32,230
Chlorothalonil	760	7,610	10.0	.4	4.5	3,460
+ copper sulfate				.1	.9	690
+ mancozeb				1.6	16.0	12,180

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Table D2. Carrots: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Chlorothalonil	1,490	2,980	2.0	1.5	3.0	4,470
+ methomyl				.2	.5	670
Chlorothalonil	1,170	5,870	5.0	.4	2.2	2,670
+ methoxychlor				.5	2.5	2,930
+ parathion				.1	.4	500
Chlorothalonil	1,520	6,050	3.9	1.5	6.0	9,140
+ parathion				.5	2.0	3,020
Copper sulfate	1,140	5,710	5.0	.9	.4	510
+ diazinon				.5	2.5	2,850
+ mancozeb				1.2	6.0	6,850
Diazinon	760	3,810	5.0	.4	2.5	1,900
+ methoxychlor				.4	2.5	1,900
Metallic copper	360	1,450	4.0	.3	1.4	520
+ sulfur				.3	1.4	520
Parathion	800	4,790	5.9	.1	.5	410
+ mancozeb				.4	2.4	1,950
Telone	950	950	1.0	114.9	114.9	109,160
+ Vorlex				20.3	20.3	19,260
Total	-	50,860	-	4.3	-	221,800
TOTAL PESTICIDES	-	202,570	-	7.3	-	735,860

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.
c/ Excluded 767,400 gallons of mineral spirits used in 12,000 acre-treatments.

Table D3. Carrots: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides c/						
Linuron	6,780	8,700	1.2	1.0	1.3	9,170
Profluralin	390	390	1.0	.3	.3	120
Trifluralin	4,330	4,330	1.0	.5	.5	2,350
Total	-	13,420	-	.9	-	11,640
Insecticides						
Carbaryl	150	150	1.0	.8	.8	120
Diazinon	160	300	1.8	.5	.9	150
Other	-	440	-	.2	-	110
Total	-	890	-	.4	-	380
Fungicides						
Zineb	170	170	1.0	1.2	1.2	210
Rodenticides	60	190	4.8	-	-	-
Tank-mixes						
Fonofos	100	100	1.0	.4	.4	40
+ trifluralin				.2	.2	30
TOTAL PESTICIDES	-	14,770	-	.8	-	12,300

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.
c/ Excludes 3,990 gallons of mineral spirits used for 271 acre-treatments.

Table D4. Carrots: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Linuron	5,130	8,590	1.6	.8	1.3	7,040
Nitrofen	330	460	1.3	.4	.6	220
Triflurlain	6,610	7,950	1.2	.7	.9	6,040
Other	-	120	-	5.0	-	600
Total	-	17,120	-	.8	-	13,900
Insecticides						
Bacillus thuringiensis c/	60	420	7.0	-	-	-
Diazinon	2,120	2,310	1.0	.7	.8	1,810
Methomyl	1,260	2,460	1.9	.4	.8	1,110
Parathion	1,080	1,930	1.7	.9	1.7	1,850
Toxaphene	1,250	1,250	1.0	1.0	1.0	1,250
Other	-	1,530	-	.6	-	920
Total	-	9,900	-	.7	-	6,940
Fungicides						
Maneb	8,500	35,620	4.1	1.4	6.2	53,020
Other	-	170	-	4.1	-	710
total	-	35,790	-	1.5	-	53,730
Nematicides						
D-D	860	860	1.0	57.8	57.8	49,780
Ethylene dibromide	1,250	1,250	1.0	51.1	51.1	63,990
Total	-	2,110	-	53.9	-	113,770
Tank-mixes						
Atrazine	180	360	2.0	4.1	8.2	1,480
+ linuron				.8	1.6	300
+ parathion				.2	.4	90
+ toxaphene				.3	.6	130
Copper hydroxide	560	1,450	2.5	8.2	21.4	11,990
+ sulfur				4.7	12.2	6,830

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Table D4. Carrots: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Monosodium methane arsenate	260	260	1.0	.4	.4	120
+ prometryne				.1	.1	30
Other	-	70	-	1.4	-	100
Total	-	2,140	-	9.8	-	21,070
TOTAL PESTICIDES	-	67,060	-	3.1	-	209,410

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table E1. Celery: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDEC	640	640	1.0	3.8	3.8	2,460
Nitrofen	700	3,050	4.3	.5	2.2	1,560
Other	-	90	-	1.1	-	100
Total	-	3,780	-	1.0	-	4,120
Insecticides						
Azinphosmethyl	430	1,700	3.9	.4	1.9	840
Demeton	620	2,150	3.4	.2	.8	530
Endosulfan	390	930	2.3	.7	1.7	680
Methomyl	500	2,180	4.3	.1	.8	430
Parathion	630	2,700	4.2	.5	2.4	1,560
Other	-	910	-	.3	-	320
Total	-	10,570	-	.4	-	4,360
Fungicides						
Anilazine	620	2,100	3.3	1.4	4.7	2,950
Benomyl	200	1,600	8.0	.5	4.0	800
Chlorothalonil	640	3,350	5.2	1.1	5.8	3,760
Maneb	80	550	6.8	1.6	11.1	890
Total	-	7,600	-	1.1	-	8,400
Tank-mixes						
Chloropicrin	60	60	1.0	37.5	37.5	2,250
+ D-D				212.5	212.5	12,750
Other	-	20	-	1.5	-	30
Total	-	80	-	187.8	-	15,030
TOTAL PESTICIDES	-	22,030	-	1.4	-	31,910

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table E2. Celery: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDAA	2,790	2,790	1.0	1.3	1.3	3,780
CDEC	7,850	7,850	1.0	3.0	3.0	24,290
Nitrofen	2,400	2,400	1.0	1.0	1.0	2,400
Prometryne	1,170	2,340	2.0	0.1	0.3	370
Total	-	15,380	-	2.0	-	30,840
Insecticides						
Bacillus thuringiensis c/	3,300	15,000	4.5	-	-	-
Methomyl	1,170	11,700	10.0	0.8	8.1	9,480
Naled	2,030	16,200	7.9	0.4	3.6	7,470
Oxamyl	3,200	52,200	16.3	0.4	7.8	25,210
Permethrin	9,260	72,980	7.8	0.1	0.8	8,200
Total	-	168,080	-	0.2	-	50,360
Fungicides						
Benomyl	2,400	7,200	3.0	0.2	0.7	1,800
Chlorothalonil	7,950	91,540	11.5	0.6	7.4	58,940
Copper hydroxide	4,160	66,100	15.8	1.5	25.3	105,630
Mancozeb	1,800	9,630	5.3	1.0	5.7	10,370
Maneb	6,150	75,970	12.3	0.7	9.1	56,420
Sulfur	1,170	17,550	15.0	0.7	11.7	13,690
Total	-	267,990	-	0.9	-	246,850
Tank mixtures						
CDAA	2,130	2,130	1.0	4.0	4.0	8,530
+ CDEC				4.0	4.0	8,530
Total	-	2,130	-	8.0	-	17,060
TOTAL PESTICIDES	-	453,580	-	0.7	-	345,110

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table E3. Celery: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDEC	1,880	2,040	1.0	2.6	2.8	5,430
Nitrofen	290	460	1.5	1.3	2.0	600
Prometryn	2,640	5,420	2.0	3.1	6.5	17,280
Other	-	850	-	2.0	-	1,760
Total	-	8,770	-	2.8	-	25,070
Insecticides						
Acephate	940	3,240	3.4	.5	1.7	1,620
Bacillus thuringiensis c/	1,220	5,380	4.4	-	-	-
Diazinon	420	830	1.9	.4	.9	390
Endosulfan	1,080	3,700	3.4	.4	1.6	1,760
Malathion	640	2,260	3.5	1.2	4.4	2,820
Mevinphos	1,080	4,020	3.7	.3	1.3	1,480
Oxamyl	1,260	2,260	1.7	.5	.9	1,230
Parathion	1,550	3,720	2.4	.4	1.1	1,850
Other	-	2,730	-	.3	-	850
Total	-	27,640	-	.4	-	12,000
Fungicides						
Anilazine	1,910	7,500	3.9	1.0	4.2	8,040
Benomyl	80	160	2.0	.2	.5	40
Copper hydroxide	360	2,780	7.7	1.8	14.4	5,190
Mancozeb	1,250	6,050	4.8	.1	.8	1,070
Other	-	12,110	-	1.1	-	13,550
Total	-	28,600	-	1.1	-	34,300
Nematicides						
Oxamyl	130	200	1.5	.6	1.0	130
Tank mixtures						
Acephate + fungicides	360	510	1.4	1.7	2.4	880
Azinphosmethyl + fungicides + insecticides	340	1,120	3.2	1.7	5.8	1,980
Bacillus thuringiensis c/ + fungicides + insecticides	1,030	1,230	1.1	.8	.9	1,020
Bacillus thuringiensis c/ + ethylan	80	480	6.0	- / .2	- / .9	- / 70

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Table E3. Celery: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
CDEC	630	940	1.4	4.0	6.0	3,810
+ D-D				136.6	203.9	128,430
+ malathion				.9	1.3	810
+ prometryn				1.1	1.6	1,020
Chlorothalonil	850	4,390	5.1	2.0	10.7	9,170
+ methomyl				.2	1.0	830
Chlorothalonil	330	1,390	4.2	.9	3.9	1,310
+ mevinphos				.4	1.5	500
Chlorothalonil + fungicides + insecticides	4,970	9,030	1.8	1.7	3.1	15,870
Copper compounds + fungicides + insecticides	1,850	3,440	1.8	2.2	4.1	7,620
Copper hydroxide	110	1,120	10.1	4.1	42.3	4,660
+ anilazine				2.0	20.5	2,250
+ mancozeb				3.2	32.6	3,590
Demeton + fungicides + insecticides	520	1,170	2.2	1.0	2.3	1,210
Diazinon + fungicides + insecticides	700	2,240	3.2	1.0	3.2	2,250
Endosulfan + insecticides	320	730	2.2	.9	2.0	660
Other	-	2,570	-	1.8	-	4,870
Total	-	30,360	-	6.3	-	192,810
TOTAL PESTICIDES	-	95,570	-	2.7	-	264,310

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.
c/ Quantity data not reported because *Bacillus thuringiensis* is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table F1. Cucumbers: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	170	170	1.0	2.8	2.8	480
Naptalam	130	130	1.0	2.6	2.6	340
Other	-	10	-	1.0	-	-
Total	-	310	-	2.6	-	830
Insecticides						
Azinphosmethyl	100	170	1.7	.5	.9	90
Carbaryl	130	130	1.0	.6	.6	90
Endosulfan	260	540	2.0	.5	1.0	280
Other	-	20	-	.5	-	10
Total	-	860	-	.5	-	470
Fungicides						
Chlorothalonil	280	670	2.3	1.8	4.3	1,220
Mancozeb	100	130	1.3	2.0	2.7	270
Other	-	40	-	3.2	-	130
Total	-	840	-	1.9	-	1,620
Tank-mixes						
Naptalam	1,200	1,200	1.0	2.2	2.2	2,700
+ bensulide				4.2	4.2	4,990
Other	-	280	-	1.7	-	480
Total	-	1,480	-	5.5	-	8,170
TOTAL PESTICIDES	-	3,490	-	3.1	-	11,090

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table F2. Cucumbers: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	5,650	6,050	1.0	1.6	1.7	10,040
Naptalam	3,570	3,570	1.0	1.9	1.9	6,870
Other	-	1,430	-	.7	-	1,010
Total	-	11,050	-	1.6	-	17,920
Insecticides						
Carbaryl	5,210	19,220	3.6	0.9	3.4	18,070
Lindane	860	3,330	3.8	0.2	1.0	940
Methomyl	1,210	2,630	2.1	0.9	2.0	2,470
Other	-	370	-	1.2	-	460
Total	-	25,550	-	0.8	-	21,940
Fungicides						
Chlorothalonil	2,110	4,220	2.0	1.8	3.7	7,840
Difolatan	670	1,200	1.7	1.7	3.0	2,070
Maneb	1,300	4,370	3.3	1.4	4.8	6,280
Other	-	350	-	0.6	-	240
Total	-	10,140	-	1.6	-	16,430
Nematicides						
D-D	300	300	1.0	18.0	18.0	5,400
Total	-	300	-	18.0	-	5,400
Tank mixtures						
Benomyl	420	4,050	9.6	0.4	4.8	2,020
+ methomyl				0.4	4.4	1,860
Bensulide	350	350	1.0	3.3	3.3	1,170
+ naptalam				1.6	1.6	590
Disulfoton						
+ nematicides	1,760	1,760	1.0	0.9	0.9	1,710
Lindane	1,250	1,250	1.0	1.2	1.2	1,500
+ maneb				0.2	0.2	350
Naptalam						
+ herbicides	170	170	1.0	1.8	1.8	320
Other	-	390	-	2.4	-	940
Total	-	7,970	-	1.3	-	10,460
TOTAL PESTICIDES	-	55,010	-	1.3	-	72,150

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.

Table F3. Cucumbers: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	8,580	8,590	1.0	3.4	3.4	29,870
Chloramben	2,260	2,310	1.0	1.5	1.5	3,560
Naptalam	11,280	11,280	1.0	2.0	2.0	22,830
Other	-	430	-	.6	-	290
Total	-	22,610	-	2.5	-	56,550
Insecticides						
Carbaryl	8,080	14,100	1.7	.9	1.6	13,240
Diazinon	3,080	3,080	1.0	.9	.9	2,870
Endosulfan	1,770	2,850	1.6	.6	1.0	1,850
Other	-	1,330	-	1.4	-	1,940
Total	-	21,360	-	.9	-	19,900
Fungicides						
Chlorothalonil	2,020	3,140	1.5	1.2	1.9	3,940
Copper hydroxide	830	2,470	2.9	1.5	4.5	3,760
Copper sulfate	1,990	5,980	2.0	1.2	2.5	7,480
Mancozeb	420	1,780	4.2	2.2	9.7	4,080
Maneb	390	770	1.9	1.7	3.4	1,360
Other	-	740	-	2.4	-	1,830
Total	-	14,880	-	1.5	-	22,450
Tank mixtures						
Bensulide	100	100	1.0	4.0	4.0	400
+ alachlor				1.4	1.4	140
Carbaryl + fungicides + insecticides	670	1,290	1.9	2.6	5.1	3,420
Chlorothalonicl + fungicides + insecticides	290	410	1.4	2.9	4.1	1,210
Copper compounds + fungicides + insecticides	940	1,240	1.3	1.6	2.1	2,050
Metribuzin	20	20	1.0	.5	.5	10
+ trifluralin				.5	.5	0
Naptalam	8,870	8,870	1.0	2.1	2.1	19,300
+ bensulide				3.9	3.9	34,590

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Table F3. Cucumbers: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Naptalam	90	90	1.0	1.0	1.0	90
+ bensulide				2.0	2.0	180
+ dinoseb				.6	.6	50
Naptalam	3,520	3,520	1.0	.8	.8	2,930
+ chloramben				.5	.5	1,760
Naptalam	60	60	1.0	.5	.5	30
+ dinoseb				.2	.2	10
Other	-	630	-	2.3	-	1,510
Total	-	16,230	-	4.1	-	67,690
TOTAL PESTICIDES	-	75,080	-	2.2	-	166,590

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table F4. Cucumbers: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	160	160	1.0	4.4	4.4	710
Naptalam	150	150	1.0	1.6	1.6	240
Total	-	310	-	3.0	-	950
Insecticides						
Carbaryl	170	190	1.1	2.4	2.7	470
Methomyl	100	300	3.0	.4	1.3	130
Mevinphos	90	170	1.8	.2	.4	40
Other	-	590	-	.3	-	210
Total	-	1,250	-	.6	-	850
Fungicides						
Copper sulfate	400	720	1.8	1.1	2.0	820
Mancozeb	60	190	3.1	.8	2.6	160
Maneb	330	1,190	3.6	1.3	5.0	1,650
Other	-	110	-	3.2	-	360
Total	-	2,210	-	1.3	-	2,990
Nematicides						
D-D	100	100	1.0	35.7	35.7	3,570
Tank-mixes						
Copper sulfate	10	10	1.0	1.0	1.0	10
+ mancozeb				2.0	2.0	20
Total	-	10	-	3.0	-	30
TOTAL PESTICIDES	-	3,880	-	2.1	-	8,390

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table G1. Green peas: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Dinoseb	2,900	2,900	1.0	1.4	1.4	4,220
Trifluralin	2,040	2,040	1.0	.5	.5	1,020
Other	-	10	-	1.0	-	10
Total	-	4,950	-	1.0	-	5,250
Tank-mixes						
Dinoseb	40	40	1.0	1.2	1.2	50
+ trifluralin				.3	.3	10
Total	-	40	-	1.5	-	60
TOTAL PESTICIDES	-	4,990	-	1.0	-	5,310

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table G2. Green peas: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Alachlor	4,440	4,440	1.0	1.6	1.6	7,170
Dalapon	14,090	14,090	1.0	.7	.7	10,330
Dinoseb	1,000	1,000	1.0	1.5	1.5	1,550
MCPA	13,430	13,430	1.0	.2	.2	3,640
Oryzalin	2,520	2,520	1.0	.7	.7	1,890
Profluralin	4,110	4,110	1.0	.7	.7	3,190
Trifluralin	84,680	88,540	1.0	.4	.4	40,710
4-MCPB	64,600	64,600	1.0	.6	.6	39,880
Other	-	2,840	-	1.4	-	4,030
Total	-	195,570	-	.5	-	112,390
Insecticides						
Dimethoate	1,880	1,880	1.0	.1	.1	260
Methomyl	67,410	121,980	1.8	.4	.8	56,590
Parathion	7,670	8,120	1.0	.3	.3	2,930
Other	-	190	-	.1	-	20
Total	-	132,170	-	.4	-	59,800
Tank mixtures						
MCPA + 4-MCPB	6,230	6,230	1.0	c/ .5	c/ .5	260 3,120
Oryzalin + trifluralin	7,410	7,410	1.0	.7 .5	.7 .5	5,700 3,700
Other	-	210	-	2.0	-	430
Total	-	13,850	-	.9	-	13,210
TOTAL PESTICIDES	-	341,590	-	.5	-	185,400

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Less than 0.05 pounds per acre.

Table G3. Green peas: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Dalapon	1,070	1,070	1.0	0.8	0.8	910
Diallate	2,670	2,900	1.0	1.2	1.3	3,590
Dinoseb	35,640	46,220	1.2	2.1	2.8	101,110
Glyphosate	490	490	1.0	.8	.8	440
MCPA	3,190	3,190	1.0	.3	.3	1,220
Trifluralin	23,380	27,530	1.1	.5	.5	13,920
Other	-	2,520	-	1.2	-	3,170
Total	-	83,920	-	1.4	-	124,360
Insecticides						
Bacillus thuringiensis c/	24,890	24,890	1.0	-	-	-
Carbaryl	9,670	9,670	1.0	.9	.9	8,780
Dimethoate	8,640	8,640	1.0	.2	.2	2,230
Imidan	1,240	1,600	1.2	.5	.6	800
Malathion	2,450	2,450	1.0	.9	.9	2,430
Methomyl	6,870	6,870	1.0	.4	.4	2,930
Methyl parathion	5,520	5,520	1.0	.4	.4	2,340
Parathion	14,750	30,610	2.0	.9	1.9	29,190
Toxaphene	650	650	1.0	1.4	1.4	970
Other	-	2,980	-	.7	-	2,160
Total	-	93,880	-	.5	-	51,830
Tank-mixes						
Methyl parathion	11,540	24,630	2.1	.8	1.8	21,530
+ parathion				1.7	3.7	43,060
Total	-	24,630	-	2.6	-	64,590
TOTAL PESTICIDES	-	202,430	-	1.1	-	240,780

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table H1. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	2,480	2,480	1.0	4.9	4.9	12,380
CDEC	1,860	1,870	1.0	2.2	2.2	4,150
Pronamide	700	700	1.0	1.4	1.4	980
Other	-	330	-	3.3	-	1,110
Total	-	5,380	-	3.4	-	18,620
Insecticides						
Acephate	420	910	2.1	.8	1.8	770
Bacillus thuringiensis c/	2,170	3,400	1.5	-	-	-
Diazinon	550	1,240	2.2	.5	1.3	740
Dimethoate	140	500	3.5	.2	1.0	140
Methomyl	1,380	12,960	9.3	.4	4.2	5,870
Mevinphos	1,810	5,990	3.3	.8	2.7	4,900
Parathion	1,570	3,100	1.9	.7	1.5	2,450
Other	-	780	-	.8	-	690
Total	-	28,880	-	.5	-	15,560
Fungicides						
Benomyl	240	380	1.5	.8	1.4	340
Maneb	460	1,120	2.4	1.6	3.9	1,810
Other	-	940	-	1.5	-	1,440
Total	-	2,440	-	1.4	-	3,590
Tank-mixes						
Bacillus thuringiensis c/ + fungicides + insecticides	1,600	10,100	6.3	1.9	12.1	19,370
Diazinon	860	4,300	5.0	.5	2.5	2,150
+ maneb				2.4	12.0	10,310
Other	-	260	-	1.6	-	420
Total	-	14,660	-	2.1	-	32,250
TOTAL PESTICIDES	-	51,360	-	1.3	-	70,020

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table H2. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDEC	9,560	15,710	1.6	3.6	6.0	57,880
Paraquat	7,580	9,390	1.2	0.4	0.5	4,020
Total	-	25,100	-	2.4	-	61,900
Insecticides						
Bacillus thuringiensis c/	2,560	13,830	5.4	-	-	-
Dimethoate	1,530	8,510	5.5	0.4	2.2	3,410
Methomyl	6,640	17,660	2.6	0.2	0.7	4,880
Permethrin	4,880	53,590	10.9	-	0.9	4,770
Phosdrin	1,070	4,130	3.8	0.4	1.8	1,980
Toxaphene	3,810	9,510	2.4	1.8	4.5	17,360
Other	-	1,250	-	0.4	-	560
Total	-	108,480	-	0.3	-	32,960
Fungicides						
Copper hydroxide	680	4,050	5.9	0.8	4.9	3,360
Mancozeb	5,020	25,820	5.1	1.3	7.1	35,850
Maneb	990	11,340	11.4	0.4	4.5	4,550
Other	-	190	-	1.8	-	350
Total	-	41,400	-	1.0	-	44,110
Tank mixtures						
Methyl parathion	320	720	2.2	0.2	0.6	200
+ parathion				0.5	1.2	400
Total	-	720	-	0.8	-	600
TOTAL PESTICIDES	-	175,700	-	0.7	-	139,570

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table H3. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDEC	1,450	2,960	2.0	3.7	7.6	11,050
Other	-	220	-	.6	-	140
Total	-	3,180	-	3.5	-	11,190
Insecticides						
Malathion	130	230	1.7	2.0	3.6	470
Methomyl	1,310	6,030	4.6	.8	3.7	4,930
Mevinphos	1,550	3,580	2.3	.2	.6	990
Parathion	1,110	6,590	5.9	.5	3.0	3,350
Other	-	120	-	1.1	-	140
Total	-	16,550	-	.5	-	9,880
Fungicides						
Maneb	1,310	5,480	4.1	.5	2.4	3,180
Other	-	180	-	1.2	-	230
Total	-	5,660	-	.6	-	3,410
Tank mixtures						
Bacillus thuringiensis d/	150	300	2.0	-	-	-
+ oils				.1	-	10
Other	10	10	1.0	1.0	1.0	10
Total	-	310	-	-	.6	20
TOTAL PESTICIDES	-	25,700	-	.9	-	24,500

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table H4. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Pronamide	250	250	1.0	0.8	0.8	210
Other	-	40	-	1.7	-	70
Total	-	290	-	.9	-	280
Insecticides						
Demeton	110	210	1.9	.2	.5	60
Endosulfan	670	1,190	1.7	.6	1.1	740
Parathion	130	300	2.3	.7	1.6	220
Other	-	100	-	1.3	-	130
Total	-	1,800	-	.6	-	1,150
Fungicides						
Captan	160	170	1.0	1.8	1.9	310
Tank-mixes						
Endosulfan	50	50	1.0	1.0	1.0	50
+ meta-systox				.2	.2	10
Total	-	50	-	1.2	-	60
TOTAL PESTICIDES	-	2,310	-	.7	-	1,800

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table H5. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Benefin	13,840	14,210	1.0	0.9	0.9	13,680
Bensulide	2,810	2,960	1.0	4.6	4.8	13,720
Pronamide	5,700	5,700	1.0	1.0	1.0	5,900
Propham	1,620	1,620	1.0	2.6	2.6	4,300
Trifluralin	560	890	1.5	.6	.9	550
Other	-	410	-	3.7	-	1,530
Total	-	25,790	-	1.5	-	39,680
Insecticides						
Acephate	5,200	12,790	2.4	.9	2.3	12,380
Bacillus thuringiensis c/	8,060	19,700	2.4	-	-	-
Carbaryl	1,330	3,990	3.0	1.9	5.8	7,730
Diazinon	2,240	4,050	1.8	.5	.9	2,230
Dimethoate	1,270	1,270	1.0	.2	.2	370
Endosulfan	4,410	6,850	1.5	.9	1.4	6,370
Methomyl	11,050	34,880	3.1	.6	1.9	21,650
Mevinphos	6,770	18,390	2.7	.8	2.2	15,270
Parathion	2,540	6,660	2.6	.7	2.0	5,190
Permethrin	4,570	8,470	1.8	.1	.3	1,550
Toxaphene	1,360	1,360	1.0	1.3	1.3	1,830
Other	-	1,900	-	2.4	-	4,650
Total	-	120,310	-	.6	-	79,220
Fungicides						
Chlorothalonil	440	440	1.0	1.4	1.4	620
Maneb	5,620	15,150	2.6	1.5	4.2	23,830
Phorate	770	770	1.0	.9	.9	750
Other	-	480	-	1.1	-	530
Total	-	16,840	-	1.5	-	25,730
Tank-mixes						
Acephate + fungicides + insecticides	1,590	2,120	1.3	1.3	1.7	2,760
Bacillus thuringiensis c/ + fungicides + insecticides	12,590	33,080	2.6	.5	1.3	16,910

-- continued

Table H5. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Bacillus thuringiensis c/	230	2,100	9.1	-	-	-
+ carbaryl				.2	2.2	510
+ methomyl				.2	2.4	560
Bacillus thuringiensis c/	380	3,760	9.8	-	-	-
+ carbaryl				.1	.6	230
+ parathion				.5	5.2	1,990
Bacillus thuringiensis c/	5,400	9,950	1.8	-	-	-
+ methomyl				.6	1.2	6,220
Bacillus thuringiensis c/	1,750	1,910	1.0	-	-	-
+ mevinphos				.5	.6	1,080
Copper sulfate + fungicides + insecticides	660	660	1.0	2.4	2.4	1,630
Endosulfan	6,590	13,960	2.1	1.1	2.3	15,720
+ methomyl				.5	1.2	8,160
Endosulfan + fungicides + insecticides	3,230	3,230	1.0	3.7	3.7	12,070
Methomyl	1,130	2,270	2.0	.4	.9	1,020
+ methyl parathion				.6	1.3	1,410
Methomyl	1,420	3,120	2.1	.6	1.3	1,980
+ methyl parathion				.2	.6	810
+ parathion				.5	1.1	1,620
Methomyl + fungicides + insecticides	4,010	4,010	1.0	3.6	3.6	14,680

— continued

Table H5. Lettuce: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Methyl parathion + parathion	2,450	3,470	1.4	.3 .7	.5 1.1	1,340 2,680
Parathion + toxaphene	1,220	1,350	1.1	.9 2.1	1.0 2.4	1,340 2,960
Other	-	4,780	-	5.3	-	25,760
Total	-	89,770	-	1.3	-	123,440
TOTAL PESTICIDES	-	252,710	-	1.0	-	268,070

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table 11. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDAA	12,620	26,450	2.0	7.0	14.8	187,000
Chloropropham	4,580	5,650	1.2	4.7	5.8	26,580
Chlorothalonil	70	260	3.7	.9	3.4	240
DCPA	860	870	1.0	5.7	5.8	5,010
Nitrofen	10,270	22,960	2.2	.9	2.0	21,350
Other	-	430	-	7.4	-	3,210
Total	-	56,620	-	4.2	-	243,390
Insecticides						
Azinphosmethyl	810	2,910	3.5	.4	1.7	1,420
Diazinon	4,170	12,560	3.0	.5	1.7	7,170
Ethion	340	340	1.0	.8	.8	300
Fonofos	3,660	3,660	1.0	1.6	1.6	5,990
Malathion	310	510	1.6	1.8	3.0	930
Methyl parathion	750	3,240	4.3	.5	2.1	1,620
Parathion	9,770	38,250	3.9	.5	1.9	19,280
Other	-	840	-	.7	-	670
Total	-	62,310	-	.5	-	37,380
Fungicides						
Anilazine	320	2,040	6.3	1.5	9.5	3,060
Chlorothalonil	5,020	22,930	4.5	1.8	8.4	42,440
Mancozeb	550	2,850	5.1	2.1	11.3	6,260
Maneb	5,040	11,010	2.1	2.2	4.8	24,430
Nabam	3,120	3,120	1.0	2.6	2.6	8,290
Zineb	270	540	2.0	1.5	3.0	820
Other	-	630	-	.2	-	160
Total	-	43,120	-	1.9	-	85,460
Sprout Control						
Maleic hydrazide	8,660	8,660	1.0	1.5	1.5	13,410
Tank-mixes						
CDAA + herbicides	7,600	9,980	1.3	11.5	15.1	114,820
Chlorothalonil + diazinon	2,120	13,170	6.2	1.0 .2	6.4 1.3	13,670 2,700

— continued

Table I1. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/ -- continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Chlorothalonil	2,550	19,860	7.7	.7	5.9	15,290
+ methyl parathion				.3	2.0	4,970
Chlorothalonil	1,510	12,480	8.2	.9	7.7	11,750
+ parathion				.3	2.7	4,060
Chlorothalonil + herbicides + insecticides	2,650	3,820	1.4	2.9	4.3	11,430
Diazinon + fungicides + insecticides	1,730	13,760	7.9	.8	6.6	11,470
Maneb + herbicides + insecticides	1,560	4,670	2.9	2.8	8.3	13,080
Other	-	13,330	-	1.9	-	25,870
Total	-	91,070	-	2.5	-	229,110
TOTAL PESTICIDES	-	261,780	-	2.3	-	608,750

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table I2. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
CDAA	8,420	26,210	3.1	6.0	18.9	159,880
Chloropropham	6,020	12,730	2.1	2.2	4.8	29,170
DEX	1,190	3,100	2.6	3.7	9.8	11,760
Nitrofen	11,140	44,440	3.9	1.5	6.1	69,010
Other	-	1,140	-	3.5	-	4,100
Total	-	87,620	-	3.1	-	273,920
Insecticides						
Azinphosmethyl	1,620	3,240	2.0	.7	1.4	2,390
Carbaryl	3,830	14,960	3.9	.8	3.3	12,790
Diazinon	3,740	18,080	4.8	.4	2.2	8,470
Fonofos	3,540	6,500	1.8	2.0	3.8	13,470
Malathion	300	720	2.4	1.1	2.7	830
Methyl parathion	3,240	21,920	6.7	.4	2.8	9,140
Parathion	5,920	33,130	5.5	.3	2.0	12,210
Other	-	1,810	-	1.0	-	1,960
Total	-	100,360	-	.6	-	61,260
Fungicides						
Chlorothalonil	9,410	48,390	5.1	1.6	8.7	82,160
Copper hydroxide	170	550	3.2	1.4	4.7	800
Mancozeb	2,570	9,780	3.8	1.3	5.2	13,420
Maneb	1,360	4,270	3.1	1.1	3.5	4,880
Thiram	410	1,630	3.9	38.0	151.2	62,020
Other	-	1,580	-	1.4	-	2,320
Total	-	66,740	-	2.4	-	165,600
Sprout control						
Maleic hydrazide	1,080	1,030	1.0	2.6	2.6	2,780
Tank mixtures						
Anilazine	1,490	4,470	3.0	1.4	4.4	6,700
+ parathion				1.0	3.0	4,470
+ nitrofen				1.5	4.5	6,700
Azinphosmethyl	1,490	2,980	2.0	.5	1.0	1,490
+ chlorothalonil				.5	.9	1,350
+ nitrofen				.5	1.0	1,490

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Table I2. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Carbaryl	230	1,640	7.1	.7	5.6	1,310
+ maneb				.7	5.6	1,310
CDAA	3,770	6,620	1.7	3.8	6.7	25,420
+ chloropropham				4.1	7.2	27,010
CDAA	3,770	16,330	4.3	2.3	9.9	37,600
+ chloropropham				1.1	4.7	17,780
+ nitrofen				1.1	4.9	18,360
CDAA						
+ herbicides	310	570	1.8	6.0	11.0	3,440
Chlorothalonil	1,490	2,980	2.0	.4	.9	1,350
+ malathion				2.0	4.0	5,960
+ nitrofen				.5	1.0	1,490
Chlorothalonil	1,490	2,980	2.0	.9	1.8	2,710
+ malathion				2.0	4.0	5,960
+ nitrofen				1.5	3.0	4,470
+ zineb				.2	.5	670
Chlorothalonil	2,880	10,430	3.6	1.5	5.5	15,920
+ parathion				.4	1.5	4,140
Chlorothalonil	1,490	2,980	2.0	.4	.9	1,350
+ parathion				2.0	4.0	5,960
+ nitrofen				1.5	3.0	4,470
Chlorothalonil						
+ fungicides						
+ insecticides	870	2,770	3.1	2.3	7.3	6,420
Copper hydroxide	1,490	2,380	1.5	1.0	1.7	2,570
+ maneb				.8	1.3	1,910
+ nitrofen				1.5	2.4	3,580
Diazinon	20	20	1.0	-	-	-
+ anilazine				.5	.5	1,600
Diazinon	1,600	3,190	1.9	.5	1.0	1,600
+ maneb				1.6	3.2	5,110

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Table I2. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Diazinon	730	2,190	3.0	.2	.7	550
+ parathion				.5	1.5	1,100
Ethide	120	120	1.0	.1	.1	10
+ thiram				.1	.1	10
Metallic copper	700	3,510	5.0	.3	1.8	1,260
+ sulfur				.3	1.8	1,260
Other	-	3,020	-	3.8	-	11,600
Total	-	69,180	-	3.5	-	246,140
TOTAL PESTICIDES	-	324,980	-	2.3	-	749,700

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table I3. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Chloroxuron	880	1,270	1.4	2.3	3.4	3,010
DCPA	11,330	13,440	1.1	6.7	8.0	91,340
Nitrofen	5,810	7,890	1.3	2.0	2.7	16,160
Other	-	2,510	-	2.0	-	5,110
Total	-	25,110	-	4.6	-	115,620
Insecticides						
Carbophenothion	2,960	2,960	1.0	3.4	3.4	10,330
Diazinon	480	1,140	2.3	.8	2.0	970
Ethion	2,120	2,180	1.0	.9	1.0	2,150
Fonofos	360	720	2.0	.1	.3	120
Malathion	870	940	1.0	.9	1.0	930
Methyl parathion	1,080	2,100	1.9	.3	.7	770
Parathion	5,200	9,920	1.9	.7	1.4	7,340
Toxaphene	1,760	3,840	2.1	3.2	7.1	12,620
Other	-	3,030	-	6.5	-	19,920
Total	-	26,830	-	2.0	-	55,150
Fungicides						
Anilazine	1,520	1,520	1.0	1.0	1.0	1,600
Mancozeb	3,170	10,980	2.9	2.4	7.2	27,030
Maneb	560	1,790	3.1	1.8	5.7	3,230
Zineb	380	960	2.5	1.4	3.7	1,410
Other	-	1,200	-	4.0	-	4,860
Total	-	16,450	-	2.3	-	38,130
Nematicides						
D-D	860	860	1.0	226.4	226.4	194,750
Sprout Control						
Maleic hydrazide	5,790	5,790	1.0	2.8	2.8	16,310
Tank-mixes						
Anilazine	410	410	1.0	1.0	1.0	410
+ maleic hydrazide				4.5	4.5	1,880
Anilazine	1,000	2,890	2.8	1.0	3.0	3,000
+ parathion				1.1	3.3	3,290
+ toxaphene				2.4	7.1	7,120

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Table I3. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Azinphosmethyl	960	960	1.0	.7	.7	710
+ parathion				1.0	1.0	960
Dyrene						
+ insecticides						
+ fungicides	220	330	1.5	1.9	2.9	650
Ethion	960	960	1.0	.1	.1	160
+ oils				9.5	9.5	9,210
Malathion	520	810	1.5	1.4	2.2	1,190
+ toxaphene				2.0	3.1	1,610
Maleic hydrazide	110	110	1.0	3.7	3.7	410
+ mancozeb				2.3	2.3	250
Methyl parathion	370	410	1.1	3.0	3.3	1,240
+ parathion				6.0	6.7	2,480
Parathion	960	1,920	2.0	1.0	2.0	1,920
+ mevinphos				.2	.5	430
Parathion	690	1,960	2.8	1.0	2.8	1,960
+ toxaphene				.9	2.8	1,960
Parathion	1,080	1,590	1.4	.7	1.1	1,210
+ toxaphene				2.4	3.5	3,820
+ mancozeb				2.0	3.1	3,290
Parathion						
+ fungicides						
+ insecticides	560	720	1.2	2.6	3.3	1,890
Other	-	3,260	-	17.5	-	57,050
Total	-	16,330	-	6.6	-	108,100
TOTAL PESTICIDES	-	91,370	-	5.7	-	528,060

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table I4. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	14,700	16,300	1.1	3.6	3.9	58,770
DCPA	12,120	15,860	1.3	4.9	6.4	78,060
Isopropalin	2,720	3,020	1.1	4.8	5.3	14,640
Nitrofen	4,700	6,130	1.3	2.0	2.7	12,760
Trifluralin	3,340	5,370	1.6	.5	.9	3,130
Other	-	670	-	2.4	-	1,640
Total	-	47,350	-	3.5	-	169,000
Insecticides						
Diazinon	2,110	3,290	1.5	1.2	2.0	4,230
Ethion	580	580	1.0	.7	.7	430
Methomyl	3,470	5,730	1.6	.6	1.0	3,660
Mevinphos	270	540	2.0	.6	1.2	350
Parathion	6,980	21,870	3.1	.6	1.9	13,510
Toxaphene	6,830	16,840	2.4	1.2	3.0	20,960
Other	-	3,160	-	.7	-	2,460
Total	-	52,010	-	.8	-	45,600
Fungicides						
Captafol	720	3,590	4.9	.8	4.3	3,150
Chlorothalonil	2,050	5,070	2.4	.6	1.7	3,500
Mancozeb	860	1,690	1.9	1.4	2.8	2,420
Maneb	18,890	134,850	7.1	1.6	11.7	222,110
Other	-	1,070	-	.9	-	1,020
Total	-	146,270	-	1.5	-	232,200
Sprout control						
Maleic hydrazide	1,460	1,460	1.0	2.8	2.8	4,160
Tank-mixes						
Bensulide	840	840	1.0	3.9	3.9	3,340
+ DCPA				.2	.2	170
Copper compounds + fungicides + insecticides	570	670	1.1	3.1	3.7	2,120
DCPA	490	490	1.0	7.6	7.6	3,770
+ diazinon				1.4	1.4	690

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Table I4. Onions: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Diazinon	220	1,290	5.8	.1	.9	200
+ maneb				2.1	12.4	2,730
+ methazole				-	.1	20
+ parathion				.5	3.2	700
+ nitrofen				.1	.8	170
Diazinon	920	5,520	6.0	.1	.3	280
+ maneb				1.2	7.4	6,830
+ parathion				.3	1.9	1,760
Diazinon	820	2,140	2.6	.5	1.3	1,070
+ mevinphos				.5	1.3	1,070
Maneb	2,080	6,250	3.0	1.5	4.7	9,910
+ parathion				.5	1.7	3,550
Methyl parathion	760	1,900	2.5	2.7	6.8	5,230
+ toxaphene				2.7	6.8	5,230
Methyl parathion + fungicides + insecticides	1,470	3,170	2.1	2.3	5.0	7,410
Parathion	420	840	2.0	1.0	2.0	840
+ sulfur				4.2	8.4	3,550
+ toxaphene				1.0	2.0	850
Parathion	2,860	9,250	3.2	.5	1.7	4,920
+ toxaphene				.9	3.2	9,160
Other	-	4,280	-	2.8	-	12,220
Total	-	36,640	-	2.3	-	87,790
TOTAL PESTICIDES	-	283,730	-	1.8	-	538,750

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table J1. Snap beans: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Dinoseb	17,900	17,900	1.0	2.6	2.6	47,320
EPTC	24,160	24,160	1.0	3.1	3.1	76,220
Glyphosate	250	250	1.0	1.8	1.8	470
Trifluralin	13,530	13,530	1.0	.3	.3	4,550
Total	-	55,840	-	2.3	-	128,560
Insecticides						
Carbaryl	410	410	1.0	.8	.8	350
Disulfoton	2,250	2,250	1.0	1.7	1.7	3,970
Parathion	1,070	1,070	1.0	.4	.4	540
Other	-	480	-	1.1	-	530
Total	-	4,210	-	1.2	-	5,390
Fungicides						
Benomyl	9,340	9,340	1.0	.5	.5	5,300
Other	-	380	-	.2	-	80
Total	-	9,720	-	.5	-	5,380
Tank-mixes						
EPTC	5,120	5,630	1.0	3.1	3.5	17,950
+ trifluralin				.4	.4	2,230
Other	-	130	-	2.9	-	380
Total	-	5,760	-	3.5	-	20,560
TOTAL PESTICIDES	-	75,530	-	2.1	-	159,890

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table J2. Snap beans: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Trifluralin	3,280	3,280	1.0	0.5	0.5	1,640
Other	-	1,260	-	0.7	-	1,000
Total	-	4,540	-	0.5	-	2,640
Insecticides						
Carbaryl	1,210	5,110	4.2	0.9	3.8	4,600
Dimethoate	3,350	6,290	1.8	0.5	0.9	3,170
Phosdrin	1,840	2,430	1.3	0.5	0.7	1,320
Other	-	310	-	1.2	-	390
Total	-	14,140	-	0.6	-	9,480
TOTAL PESTICIDES	-	18,680	-	0.6	-	12,120

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.

Table J3. Snap beans: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bentazon	210	210	1.0	.3	.3	80
Dinoseb	40,190	42,790	1.0	1.7	1.8	75,500
EPTC	5,890	6,770	1.1	2.7	3.1	18,290
Profluralin	600	600	1.0	.8	.8	480
Trifluralin	12,730	12,770	1.0	.5	.5	6,670
Other	-	34,040	-	3.2	-	111,200
Total	-	97,180	-	2.1	-	212,220
Insecticides						
Acephate	15,680	16,630	1.0	.8	.8	13,480
Carbaryl	47,390	143,510	3.0	1.2	3.8	180,220
Dimethoate	3,000	3,000	1.0	.3	.3	1,000
Disulfoton	7,680	11,330	1.4	1.1	1.6	12,750
Methomyl	30,890	122,390	3.9	.5	2.2	67,960
Parathion	17,520	43,650	2.4	.3	.9	15,950
Phorate	160	160	1.0	1.1	1.1	180
Other	-	750	-	.8	-	640
Total	-	341,420	-	.8	-	292,180
Fungicides						
Benomyl	5,600	5,600	1.0	.6	.6	3,450
Copper hydroxide	29,420	54,550	1.8	1.8	3.4	101,030
Copper sulfate	33,480	111,430	3.3	.8	2.7	92,910
Sulfur	1,490	1,490	1.0	1.0	1.0	1,550
Other	-	530	-	4.5	-	2,400
Total	-	173,600	-	1.1	-	201,340
Tank mixtures						
Acephate + copper sulfate	15,360	21,500	1.3	.7 1.3	1.0 1.9	16,450 28,520
Acephate + parathion	21,300	21,300	1.0	.5 .5	.5 .5	11,180 10,060
Carbaryl + copper hydroxide	760	760	1.0	1.4 1.5	1.4 1.5	1,100 1,150
Carbaryl + copper hydroxide + sulfur	4,000	8,000	2.0	1.7 1.0 .6	3.4 2.0 1.1	13,600 8,000 4,560
Carbaryl + parathion	2,790	10,690	3.8	1.2 .5	4.8 1.9	13,550 5,310

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Table J3. Snap beans: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Carbaryl + fungicides + insecticides	65,900	84,940	1.2	2.1	2.8	186,700
EPTC	3,660	3,660	1.0	1.8	1.8	6,670
+ profluralin				.5	.5	1,810
EPTC	33,540	33,540	1.0	2.4	2.4	81,530
+ trifluralin				.1	.1	2,100
EPTC + herbicides + insecticides	1,300	1,300	1.0	3.0	3.0	3,990
Other	-	970	-	7.3	-	7,130
Total	-	186,660	-	2.1	-	403,410
TOTAL PESTICIDES	-	798,860	-	1.3	-	1,109,150

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table J4. Snap beans: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Dinoseb	25,700	25,700	1.0	2.5	2.5	64,830
EPTC	26,770	27,090	1.0	3.1	3.2	85,860
Profluralin	4,410	4,410	1.0	.4	.4	2,010
Trifluralin	7,350	7,350	1.0	.4	.4	3,640
Other	-	50	-	2.8	-	140
Total	-	64,600	-	2.4	-	156,480
Insecticides						
Carbaryl	6,730	6,730	1.0	.7	.7	4,870
Diazinon	1,140	1,140	1.0	.3	.3	420
Disulfoton	1,170	1,170	1.0	.4	.4	570
Fonofos	15,780	15,780	1.0	1.0	1.0	17,350
Other	-	860	-	.2	-	220
Total	-	25,680	-	.9	-	23,430
Fungicides						
Benomyl	5,590	6,500	1.1	.5	.5	3,310
Captan	2,280	2,280	1.0	.8	.8	2,030
Ziram	730	730	1.0	1.2	1.2	880
Other	-	500	-	.8	-	400
Total	-	10,010	-	.6	-	6,620
Tank-mixes						
EPTC + herbicides	990	990	1.0	3.6	3.6	3,640
Fonofos	380	380	1.0	.5	.5	190
+ EPTC				2.6	2.6	990
+ profluralin				.5	.5	190
Other	-	1,420	-	4.6	-	6,600
Total	-	2,790	-	4.1	-	11,610
TOTAL PESTICIDES	-	103,080	-	1.9	-	198,140

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table J5. Snap beans: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
EPTC	690	690	1.0	2.2	2.2	1,540
Trifluralin	570	570	1.0	.5	.5	310
Other	-	10	-	2.0	-	20
Total	-	1,270	-	1.4	-	1,870
Insecticides						
Carbaryl	1,380	1,550	1.1	.7	.8	1,140
Other	-	20	-	.5	-	10
Total	-	1,570	-	.7	-	1,150
Fungicides						
Copper sulfate	240	310	1.2	.8	1.0	250
Tank-mixes						
EPTC	680	680	1.0	1.6	1.6	1,090
+ trifluralin				.5	.5	350
Other	-	50	-	6.0	-	300
Total	-	730	-	2.3	-	1,740
TOTAL PESTICIDES	-	3,880	-	1.2	-	5,010

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table K1. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Alachlor	3,210	3,210	1.0	1.4	1.4	4,700
Atrazine	14,830	17,140	1.1	1.0	1.2	18,670
Butylate	980	980	1.0	4.7	4.7	4,680
Cyanazine	640	640	1.0	1.8	1.8	1,180
EPTC	250	250	1.0	2.1	2.1	530
Glyphosate	940	940	1.0	2.3	2.3	2,250
2,4-D	350	350	1.0	.4	.4	140
Other	-	370	-	.4	-	150
Total	-	23,880	-	1.3	-	32,300
Insecticides						
Carbaryl	3,280	9,290	2.8	1.3	3.8	12,520
EPN	12,430	17,590	1.4	.1	.1	1,940
Malathion	210	760	3.6	.3	1.3	290
Methomyl	16,880	46,270	2.7	.6	1.7	29,870
Methyl parathion	11,190	17,770	1.5	.6	.9	10,780
Parathion	4,980	13,480	2.7	.5	1.5	7,880
Other	-	1,490	-	.6	-	980
Total	-	106,650	-	.6	-	64,260
Fungicides						
Chlorothalonil	30	40	1.3	1.5	2.0	60
Maneb	-	20	-	1.5	-	30
Total	-	60	-	1.5	-	90
Tank-mixes						
Atrazine	5,370	5,610	1.0	1.0	1.0	5,670
+ alachlor				1.8	1.9	9,910
Atrazine	2,990	2,990	1.0	.8	.8	2,530
+ butylate				3.3	3.3	9,820
Atrazine	1,610	1,610	1.0	.9	.9	1,490
+ cyanazine				1.1	1.1	1,710
Atrazine	160	160	1.0	1.0	1.0	160
+ 2,4-D				.1	.1	20
+ 2,4,5-T				.1	.1	10

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Table K1. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Atrazine + herbicides	360	360	1.0	9.5	9.5	3,440
Bladex + herbicides	390	390	1.0	5.6	5.6	2,190
Carbaryl	2,680	16,940	6.3	1.4	9.2	24,780
+ parathion				.3	1.8	4,880
Methomyl	430	1,300	3.0	.4	1.3	590
+ parathion				.1	.3	130
Other	-	6,680	-	1.7	-	11,820
Total	-	36,040	-	2.1	-	79,150
TOTAL PESTICIDES	-	166,630	-	1.0	-	175,800

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table K2. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Alachlor	4,630	4,630	1.0	1.3	1.3	6,330
Atrazine	24,990	25,920	1.0	1.5	1.6	41,170
Butylate	5,290	5,290	1.0	2.5	2.5	13,620
2,4-D	3,710	3,710	1.0	0.3	0.3	1,380
Other	-	3,510	-	2.9	-	10,220
Total	-	43,060	-	1.6	-	72,720
Insecticides						
Carbaryl	740	2,610	3.5	1.6	5.9	4,380
Disulfoton	240	240	1.0	2.2	2.2	540
Fonofos	12,840	12,840	1.0	1.5	1.5	19,260
Methomyl	47,780	668,930	14.0	0.2	4.1	197,150
Parathion	8,150	41,770	5.1	0.5	2.6	21,620
Toxaphene	19,780	152,950	7.7	1.2	9.2	183,890
Other	-	2,470	-	0.5	-	1,360
Total	-	881,810	-	0.4	-	428,200
Fungicides						
Mancozeb	18,520	227,990	12.3	1.1	13.7	253,970
Maneb	24,230	172,450	7.1	1.0	7.1	173,110
Other	-	1,460	-	0.8	-	1,280
Total	-	401,900	-	1.0	-	428,360
Tank mixtures						
Atrazine + butylate	14,000	14,000	1.0	1.8 4.3	1.8 4.3	25,910 60,910
Atrazine + herbicides	80	110	1.3	2.0	2.8	230
Methomyl + methyl parathion	320	4,790	14.9	0.1 0.2	2.3 3.7	750 1,200
Methomyl + fungicides	1,020	8,180	8.0	1.3	11.0	11,310
Methyl parathion + parathion	22,710	203,890	8.9	0.4 0.8	3.6 7.2	81,840 163,680
Total	-	230,970	-	1.4	-	345,830
TOTAL PESTICIDES	-	1,557,740	-	0.8	-	1,275,110

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.

Table K3. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Alachlor	85,520	85,520	1.0	1.8	1.8	161,450
Atrazine	65,760	66,100	1.0	1.4	1.4	95,450
Bentazon	3,280	3,780	1.1	.9	1.0	3,530
Butylate	15,740	15,890	1.0	3.7	3.7	59,440
Cyanazine	40,480	40,480	1.0	2.7	2.7	109,810
EPTC	9,680	9,680	1.0	4.7	4.7	46,450
Propachlor	7,910	7,910	1.0	3.6	3.6	29,180
2,4-D	6,250	6,250	1.0	.4	.4	2,530
Other	-	6,180	-	.9	-	6,150
Total	-	241,790	-	2.1	-	513,990
Insecticides						
Bacillus thuringiensis c/	150	600	4.0	-	-	-
Carbaryl	134,260	346,380	2.5	1.4	3.6	488,130
EPN	3,560	3,560	1.0	.3	.3	1,290
Fonofos	28,520	35,660	1.2	1.0	1.3	38,290
Lindane	2,090	6,270	3.0	.5	1.6	3,530
Malathion	1,010	1,310	1.2	.8	1.0	1,110
Meta-systox	910	1,090	1.1	.5	.6	550
Methomyl	86,450	203,240	2.3	.6	1.4	126,010
Methyl parathion	13,670	33,670	2.4	.6	.5	21,680
Mevinphos	1,830	1,830	1.0	.2	.2	460
Parathion	26,520	53,810	2.0	.4	.9	25,770
Phorate	30,260	30,260	1.0	1.1	1.1	35,380
Terbufos	13,670	13,670	1.0	1.3	1.3	18,890
Other	-	10,880	-	1.5	-	16,360
Total	-	742,250	-	1.0	-	777,450
Fungicides						
Captan	10	10	1.0	1.0	1.0	10
Chlorothalonil	10	70	7.0	.4	3.0	30
Metiram	-	10	-	1.0	-	10
Total	-	90	-	.5	-	50
Bird repellent						
Avitrol	16,720	16,720	1.0	.1	.1	3,240
Tank mixtures						
Atrazine	16,390	16,390	1.0	1.0	1.0	17,290
+ alachlor				1.5	1.5	24,400

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Table K3. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Atrazine	11,790	11,790	1.0	.7	.7	9,060
+ butylate				2.3	2.3	26,740
Atrazine	210	210	1.0	2.0	2.0	420
+ cyanazine				.1	.1	30
+ alachlor				.2	.2	40
+ butylate				4.2	4.2	880
Atrazine	480	480	1.0	.8	.8	410
+ metolachlor				.7	.7	350
Atrazine						
+ herbicides	2,640	2,640	1.0	2.4	2.4	6,390
Bladex						
+ herbicides	1,510	1,510	1.0	4.0	4.0	6,150
Carbaryl	800	2,460	3.0	1.1	3.6	2,890
+ malathion				1.0	3.0	2,370
Carbaryl	11,090	23,080	2.0	1.3	2.7	30,280
+ methomyl				.5	1.0	11,040
Carbaryl	4,430	5,420	1.2	1.3	1.6	7,220
+ mevinphos				.2	.3	1,170
Carbaryl	25,470	57,720	2.2	1.3	3.0	78,160
+ parathion				.5	1.1	27,570
Carbaryl						
+ insecticides	2,490	6,660	2.6	1.7	4.5	11,450
Cyanazine	14,870	14,870	1.0	1.6	1.6	24,920
+ alachlor				2.2	2.2	33,140
Cyanazine	2,850	2,850	1.0	3.1	3.1	8,990
+ butylate				2.8	2.8	8,070
EPN	4,090	4,090	1.0	2.2	2.2	9,260
+ methyl parathion				4.5	4.5	18,520
Methomyl	520	2,580	4.9	.4	2.2	1,160
+ mancozeb				.5	2.3	1,200

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Table K3. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Parathion	12,720	12,720	1.0	.1	.1	2,450
+ TDE				.8	.8	9,960
Other	-	16,110	-	1.6	-	25,990
Total	-	181,580	-	2.2	-	407,970
TOTAL PESTICIDES	-	1,182,430	-	1.4	-	1,702,700

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table K4. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Alachlor	36,730	39,850	1.0	2.1	2.2	83,720
Atrazine	28,800	29,120	1.0	1.5	1.5	45,100
Butylate	1,040	1,040	1.0	3.1	3.1	3,300
Dinoseb	2,060	2,060	1.0	3.4	3.4	7,020
EPTC	12,170	12,170	1.0	3.5	3.5	42,620
Glyphosate	1,850	1,850	1.0	1.3	1.3	2,570
Vernam	15,210	15,210	1.0	3.6	3.6	55,820
2,4-D	14,040	14,040	1.0	1.3	1.3	18,300
Other	-	650	-	1.8	-	1,190
Total	-	115,990	-	2.2	-	259,640
Insecticides						
Carbaryl	1,170	1,170	1.0	1.8	1.8	2,130
Fonofos	13,310	13,310	1.0	1.0	1.0	13,600
Meta-systox	3,140	3,140	1.0	.6	.6	1,930
Methomyl	32,200	114,990	3.5	.4	1.5	48,970
Other	-	740	-	1.6	-	1,190
Total	-	133,350	-	.5	-	67,820
Tank-mixes						
Atrazine	3,860	3,860	1.0	1.4	1.4	5,530
+ vernam				4.1	4.1	16,140
Atrazine + herbicides	200	200	1.0	5.2	5.2	1,050
Carbaryl	1,310	1,310	1.0	1.8	1.8	2,380
+ methomyl				.4	.4	590
Total	-	5,370	-	4.7	-	25,690
TOTAL PESTICIDES	-	254,710	-	1.3	-	353,150

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table K5. Sweet corn: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Trifluralin	350	350	1.0	.5	.5	180
Insecticides						
Methomyl	2,670	24,130	9.0	.8	8.0	21,380
Other	-	40	-	1.5	-	60
Total	-	24,170	-	.8	-	21,440
Fungicides						
Maneb	2,630	2,630	1.0	1.5	1.5	4,200
Tank-mixes						
Carbaryl	2,630	21,000	7.9	.6	4.8	12,720
+ methomyl				.3	2.7	7,090
Total	-	21,000	-	.9	-	19,810
TOTAL PESTICIDES	-	48,150	-	.9	-	45,630

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table L1. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Diphenamid	500	500	1.0	2.8	2.8	1,410
Metribuzin	460	460	1.0	.3	.3	140
Pebulate	380	380	1.0	.1	.1	50
Trifluralin	8,650	8,650	1.0	.7	.7	6,520
Other	-	650	-	1.6	-	1,050
Total	-	10,640	-	.8	-	9,170
Insecticides						
Azinphosmethyl	4,750	15,860	3.3	.5	1.7	8,200
Bacillus thuringiensis c/	540	540	1.0	-	-	-
Carbaryl	860	2,350	2.7	1.0	2.8	2,420
Diazinon	570	1,100	1.9	.5	.9	560
Endosulfan	960	4,020	4.1	.7	3.3	3,170
Oxamyl	2,010	6,140	3.0	.4	1.3	2,710
Parathion	2,230	4,000	1.7	.4	.8	1,880
Phosphamidon	820	1,240	1.5	.5	.8	720
Other	-	1,540	-	.6	-	960
Total	-	36,790	-	.5	-	20,620
Fungicides						
Captafol	3,290	12,110	3.6	1.7	6.4	21,360
Chlorothalonil	4,450	19,730	4.4	1.2	5.5	24,580
Mancozeb	760	2,670	3.5	1.9	6.8	5,190
Maneb	1,160	3,310	2.8	2.3	6.6	7,710
Other	-	1,190	-	1.2	-	1,430
Total	-	39,010	-	1.5	-	60,270
Other						
Ethepon	880	880	1.0	1.2	1.2	1,090
Tank-mixes						
Azinphosmethyl + captafol + oxamyl	430	1,280	2.9	.4 1.8 .5	1.4 5.2 1.5	630 2,240 640
Azinphosmethyl + chlorothalonil	1,350	2,740	2.0	.4 .9	.9 1.8	1,310 2,490

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Table L1. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Per acre: Total
Tank-mixes (cont'd)						
Azinphosmethyl	920	3,300	3.5	.2	.8	820
+ chlorothalonil				1.0	3.4	3,140
+ oxamyl				.3	.9	820
Azinphosmethyl	1,810	11,800	6.5	.4	3.2	5,860
+ endosulfan				.8	4.9	450
Azinphosmethyl	590	1,190	2.0	.3	.7	450
+ endosulfan				.8	1.6	950
+ maneb				2.4	4.8	2,850
Azinphosmethyl	480	1,140	2.3	.5	1.3	640
+ oxamyl				.5	1.2	570
Azinphosmethyl + fungicides + insecticides	2,920	4,710	1.6	2.1	3.5	10,330
Captafol + insecticides	470	470	1.0	2.6	2.6	1,230
Chlorothalonil	330	330	1.0	.9	.9	300
+ diazinon				.5	.5	160
Chlorothalonil	330	1,960	5.9	.9	5.3	1,780
+ endosulfan				.5	3.0	980
Chlorothalonil + fungicides + insecticides	1,520	5,400	3.5	1.8	6.5	9,880
Copper hydroxide + other	480	670	1.3	2.5	3.5	1,680
Dicofol + other	50	60	1.2	.6	.8	40
Maneb	80	470	5.8	1.7	10.1	810
+ oxamyl				.5	3.0	240

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Table L1. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Northeast region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Oxamyl + fungicides	170	590	3.4	1.7	6.0	1,020
Other	-	900	-	1.9	-	1,720
Total	-	37,010	-	1.6	-	62,430
TOTAL PESTICIDES	-	124,330	-	1.2	-	153,580

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table L2. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Diphenamid	2,960	2,960	1.0	2.9	2.9	8,630
Metribuzin	8,150	9,820	1.2	0.4	0.5	4,540
Napropamide	890	890	1.0	0.6	0.6	540
Paraquat	19,000	28,590	1.5	0.6	0.9	17,830
Pebulate	200	200	1.0	0.2	0.2	40
Trifluralin	800	2,130	2.6	1.1	3.1	2,480
Other	-	1,270	-	1.6	-	2,100
Total	-	45,860	-	0.7	-	36,170
Insecticides						
Bacillus thuringiensis c/	20,380	178,020	8.7	-	-	-
Carbaryl	3,550	17,770	5.0	1.3	6.6	23,620
Diazinon	2,550	12,550	4.9	0.7	3.6	9,420
Dimethoate	4,350	80,420	18.4	0.2	5.1	22,370
Endosulfan	5,280	39,300	7.4	0.5	4.3	22,810
Fonofos	1,360	1,360	1.0	1.1	1.1	1,630
Malathion	280	1,250	4.4	1.1	5.3	1,490
Methamidophos	27,300	121,860	4.4	0.9	4.0	111,750
Methomyl	32,550	321,530	9.8	0.4	4.8	157,680
Monocrotophos	2,450	15,410	6.2	0.8	5.6	13,770
Oxamyl	5,210	39,140	7.5	0.3	2.8	14,870
Permethrin	16,050	90,360	5.6	-	0.3	5,390
Toxaphene	1,460	4,320	2.9	1.2	3.8	5,570
Other	-	11,260	-	0.3	-	4,450
Total	-	934,550	-	0.4	-	394,820
Fungicides						
Benomyl	8,770	25,920	2.9	0.3	1.0	9,070
Captafol	1,020	1,760	1.7	1.4	2.5	2,600
Captan	4,100	10,970	2.6	0.7	1.9	7,790
Chlorothalonil	16,020	179,870	11.2	0.8	9.6	154,500
Copper compounds	30,730	376,100	12.2	0.8	10.2	315,540
Copper hydroxide	2,940	7,990	2.7	1.1	3.1	9,130
Mancozeb	16,590	303,290	18.2	1.0	19.5	324,050
Maneb	17,350	205,940	11.8	0.8	10.4	180,540
Metiram	3,020	27,570	9.1	1.1	10.7	32,580
Streptomycin	2,520	13,580	5.3	-	0.4	1,020
Zineb	1,690	33,750	19.9	1.5	29.9	50,630
Other	-	16,590	-	2.1	-	36,160
Total	-	1,203,330	-	0.9	-	1,123,610

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Table L2. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/ - continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Nematicides						
Chloropicrin-methyl bromide	7,110	7,370	1.0	120.2	124.6	886,130
D-D	3,980	3,980	1.0	45.9	5.9	182,930
Ethylene dibromide	1,670	1,670	1.0	6.4	6.4	10,690
Other	-	680	-	176.9	-	120,340
Total	-	13,700	-	87.5	-	1,200,090
Tank mixtures						
Bacillus thuringiensis + fungicides + insecticides	1,910	11,510	6.0	1.7	10.6	20,390
Bacillus thuringiensis c/	340	2,020	5.9	-	-	-
+ methomyl				0.3	2.0	690
Carbaryl + fungicides + insecticides	420	4,750	11.3	4.3	48.9	20,570
Carbaryl + fungicides	550	550	1.0	3.9	3.4	2,190
Copper compounds + fungicides	2,790	20,480	7.3	5.0	37.1	103,760
Di-syston	20	20	1.0	1.0	1.0	20
+ ethoprop				1.5	1.5	30
Maneb + fungicides + insecticides	460	460	1.0	5.6	5.6	2,590
Parathion	1,540	12,340	8.0	-	0.5	860
+ toxaphene				2.8	23.2	35,770
Other	-	61,370	-	5.7	-	353,420
Total	-	113,500	-	4.8	-	540,290
TOTAL PESTICIDES	-	2,310,940	-	1.4	-	3,294,980

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table L3. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Chloramben	590	850	1.4	2.0	2.8	1,700
Diphenamid	2,550	2,550	1.0	2.7	2.7	6,970
Metribuzin	14,170	18,060	1.2	.4	.5	8,130
Napropamide	620	620	1.0	1.0	1.0	620
Pebulate	2,700	2,700	1.0	.9	.9	2,450
Trifluralin	19,820	20,130	1.0	.7	.7	15,210
Other	-	880	-	1.8	-	1,670
Total	-	45,790	-	.8	-	36,750
Insecticides						
Azinphosmethyl	4,340	10,130	2.3	.4	1.1	5,010
Bacillus thuringiensis c/	280	410	1.4	-	-	-
Carbaryl	17,890	63,960	3.5	1.0	3.6	64,700
Diazinon	2,890	4,130	1.4	.6	.9	2,650
Endosulfan	7,690	16,720	2.1	.6	1.4	11,140
Methamidophos	800	2,400	3.0	.4	1.2	960
Methomyl	4,070	17,390	4.2	.4	2.1	8,560
Parathion	840	1,890	2.2	.4	1.1	940
Other	-	4,850	-	.5	-	2,580
Total	-	121,880	-	.7	-	96,540
Fungicides						
Captafol	10,360	36,820	3.5	1.6	5.8	61,000
Chlorothalonil	15,600	57,070	3.6	1.3	5.0	79,450
Copper complexes	1,430	9,310	6.5	1.6	10.9	15,650
Copper hydroxide	8,180	31,940	3.9	1.8	7.0	57,590
Copper sulfate	8,190	20,610	2.5	1.1	2.8	23,500
Mancozeb	6,410	24,180	3.7	2.1	8.1	52,190
Maneb	10,440	46,880	4.4	1.9	8.6	90,690
Naram	730	3,100	4.2	.4	2.0	1,460
Zineb	720	5,380	7.4	1.2	9.1	6,560
Other	-	2,060	-	.8	-	1,710
Total	-	237,350	-	1.6	-	389,800
Growth regulator						
Ethepon	13,180	14,400	1.0	1.3	1.4	19,040
Tank mixtures						
Azinphosmethyl	800	2,840	3.5	.4	1.4	1,190
+ chlorothalonil				1.4	5.0	4,010

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Table L3. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Azinphosmethyl	1,520	4,560	3.0	.4	1.2	1,850
+ chlorothalonil				2.3	6.9	10,530
+ copper hydroxide				2.3	6.8	10,370
Azinphosmethyl	1,120	3,370	3.0	.4	1.3	1,480
+ copper hydroxide				2.5	7.5	8,400
Azinphosmethyl	560	1,690	3.0	.2	.7	420
+ copper hydroxide				3.3	10.0	5,600
+ parathion				1.0	3.0	1,690
Azinphosmethyl	1,060	1,060	1.0	.7	.7	800
+ methamidophos				.5	.5	530
Azinphosmethyl + fungicides + insecticides	570	1,470	2.5	3.3	8.7	4,970
Bacillus thuringiensis c/ + fungicides	720	920	1.2	1.5	1.9	1,380
Captafol	960	2,870	2.9	1.3	3.9	3,780
+ endosulfan				.5	1.5	1,440
Captafol	1,060	2,130	2.0	1.3	2.6	2,800
+ mancozeb				2.4	4.8	5,110
Captafol + fungicides + insecticides	1,610	1,640	1.0	3.1	3.2	5,240
Carbaryl	1,420	3,350	2.3	1.0	2.4	3,480
+ captafol				1.3	1.3	4,320
Carbaryl	1,810	5,890	3.2	1.4	4.6	8,340
+ chlorothalonil				1.4	4.7	8,510
Carbaryl	1,900	5,120	2.6	1.3	3.6	6,910
+ chlorothalonil				1.6	4.3	8,180
+ copper hydroxide				1.3	3.4	6,380

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Table L3. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Per acre: Total
Tank mixtures (cont'd)						
Carbaryl	2,040	5,140	2.5	1.0	2.6	5,350
+ copper sulfate				.6	1.5	3,010
+ maneb				2.2	5.4	11,070
Carbaryl	610	2,610	4.2	1.0	4.3	2,670
+ mancozeb				2.1	9.0	5,510
Carbaryl	1,310	3,260	2.4	1.0	2.6	3,500
+ maneb				2.3	5.8	7,590
Carbaryl						
+ fungicides						
+ insecticides	7,850	13,180	1.6	3.4	5.8	45,870
Chlorothalonil	220	2,200	10.0	.6	6.8	1,500
+ captafol				1.8	17.6	3,860
+ endosulfan				.8	7.5	1,650
+ mancozeb				2.4	24.0	5,260
Chlorothalonil	770	1,150	1.4	.7	1.0	820
+ copper complexes				1.4	2.0	1,550
+ endosulfan				.8	1.1	860
Chlorothalonil	640	3,070	4.7	1.7	8.4	5,390
+ copper hydroxide				.6	3.1	1,960
Chlorothalonil	450	1,350	3.0	1.4	4.2	1,900
+ copper hydroxide				1.1	3.3	1,500
+ endosulfan				.6	1.9	860
Chlorothalonil	1,770	1,780	1.0	1.8	1.8	3,300
+ diazinon				.3	.3	560
Chlorothalonil	450	1,510	3.3	1.6	5.4	2,470
+ endosulfan				.6	2.0	920
Chlorothalonil	2,610	6,480	2.4	1.5	3.9	10,350
+ methomyl				.7	1.6	4,210
Chlorothalonil						
+ fungicides						
+ insecticides	1,860	2,510	1.3	2.5	3.4	6,500

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Table L3. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Copper complexes	1,760	3,160	1.7	1.8	3.3	5,840
+ captafol				1.6	2.9	5,140
+ endosulfan				.7	1.3	2,320
Copper compounds	840	870	1.0	3.0	3.1	2,610
Copper compounds + fungicides + insecticides	5,290	15,600	2.9	2.7	8.0	42,340
Copper hydroxide	2,030	11,500	5.6	1.8	10.2	20,790
+ captafol				1.0	5.4	10,990
+ endosulfan				.5	2.8	5,650
Copper hydroxide	1,310	3,320	2.5	1.0	2.7	3,570
+ sulfur				.6	1.6	2,040
Copper sulfate	1,130	2,130	1.8	1.4	2.6	3,010
+ mancozeb				1.6	3.0	3,420
Endosulfan	1,180	5,770	4.8	.4	2.4	2,850
+ maneb				1.2	6.1	7,160
Endosulfan	1,060	1,060	1.0	.5	.5	530
+ phosphamidon				1.0	1.0	1,060
Maneb	620	1,860	3.0	1.7	5.1	3,220
+ metallic copper				.1	.4	250
+ sulfur				.1	.4	250
Maneb	1,120	1,120	1.0	1.2	1.2	1,350
+ methamidophos				.	.9	950
Maneb	320	1,270	3.9	1.2	4.7	1,530
+ sulfur				.8	3.1	990
Metallic copper	1,020	1,900	1.8	.2	.5	560
+ sulfur				.2	.5	560
Metribuzin	4,060	4,060	1.0	.3	.3	1,470
+ trifluralin				.8	.8	3,050

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Table L3. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Metribuzin + herbicides	1,770	1,860	1.0	.9	1.0	1,780
Other	-	4,230	-	2.0	-	8,640
Total	-	140,860	-	2.8	-	401,640
TOTAL PESTICIDES	-	560,280	-	1.6	-	943,770

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table L4. Tomatoes: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	440	460	1.0	3.0	3.1	1,390
Napropamide	240	300	1.2	.5	.6	150
Trifluralin	220	220	1.0	1.0	1.0	240
Other	-	480	-	2.9	-	1,400
Total	-	1,460	-	2.1	-	3,180
Insecticides						
Carbaryl	400	930	2.3	1.1	2.5	1,030
Diazinon	440	3,060	6.9	.4	2.9	1,290
Methomyl	590	2,370	4.0	.9	3.8	2,250
Mevinphos	420	1,250	2.9	.2	.7	310
Parathion	590	1,310	2.2	.4	1.1	650
Toxaphene	130	480	3.6	1.1	4.3	560
Other	-	750	-	.7	-	560
Total	-	10,150	-	.6	-	6,650
Fungicides						
Captafol	260	1,050	4.0	1.7	7.0	1,830
Maneb	860	4,690	5.4	1.5	8.5	7,380
Other	-	600	-	.7	-	450
Total	-	6,340	-	1.5	-	9,660
Tank-mixes						
Methomyl	420	1,670	3.9	.9	3.5	1,510
+ maneb				1.2	4.8	2,010
Other	-	490	-	2.2	-	1,080
Total	-	2,160	-	2.1	-	4,600
TOTAL PESTICIDES	-	20,110	-	1.1	-	24,090

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table M1. Watermelons: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	600	600	1.0	0.9	0.9	580
Butralin	770	770	1.0	1.9	1.9	1,530
Naptalam	200	200	1.0	1.8	1.8	370
Paraquat	720	720	1.0	0.6	.6	470
Other	-	5,440	-	0.6	-	3,630
Total	-	7,730	-	0.8	-	6,580
Insecticides						
Bacillus thuringiensis c/	1,110	6,430	5.7	-	-	-
Carbaryl	620	820	1.3	1.0	1.3	850
Dimethoate	2,440	10,990	4.5	0.3	1.6	4,060
Endosulfan	950	2,960	3.1	0.8	2.5	2,450
Methomyl	4,600	20,430	4.4	0.7	3.5	16,220
Parathion	850	3,350	3.9	0.3	1.3	1,120
Other	-	3,780	-	1.0	-	4,090
Total	-	48,760	-	0.5	-	28,790
Fungicides						
Benomyl	5,330	13,060	2.4	0.8	2.1	11,720
Captafol	1,150	2,870	2.4	1.2	3.2	3,720
Chlorothalonil	13,160	35,700	2.7	1.0	2.9	39,240
Difolatan	3,820	8,770	2.2	1.1	2.6	10,070
Mancozeb	2,570	10,070	3.9	1.6	6.5	16,810
Maneb	11,900	52,870	4.4	1.3	6.0	72,570
Other	-	6,730	-	1.5	-	10,170
Total	-	130,070	-	1.2	-	164,300
Tank mixtures						
Alanap	60	60	1.0	1.6	1.6	100
+ bensulide				1.1	1.1	70
Benomyl	410	1,140	2.7	0.3	1.0	420
+ maneb				0.6	1.7	700
Carbaryl	120	250	2.0	1.0	2.0	250
+ chlorothalonil				0.8	1.8	220

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Table M1. Watermelons: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank mix applications, Southeast region, 1979 a/ - continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Copper sulfate	130	1,200	9.2	0.1	1.4	190
+ dimethoate				0.2	2.3	300
+ maneb				0.3	2.9	380
Disulfoton	770	770	1.0	0.4	0.4	340
+ ethoprop				0.8	0.8	690
Other	-	160	-	2.6	-	420
Total	-	3,580	-	1.1	-	4,080
TOTAL PESTICIDES	-	190,140	-	1.0	-	203,750

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.
b/ Acres treated sums in this column not derived for "other" and "totals" because two or more materials may have been used on the same acre resulting in double counting.
c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.

Table M2. Watermelons: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	1,240	2,380	1.9	1.9	3.7	4,660
Naptalam	600	600	1.0	1.5	1.5	910
Other	-	800	-	1.1	-	890
Insecticides						
Carbaryl	1,530	6,170	4.0	.6	2.6	4,100
Dicofol	150	350	2.3	.3	.8	130
Endosulfan	130	560	4.3	.8	3.8	500
Malathion	300	420	1.4	2.0	2.8	850
Methoxychlor	190	690	3.6	1.3	5.0	950
Other	-	270	-	5.3	-	1,450
Total	-	8,460	-	.9	-	7,980
Fungicides						
Benomyl	670	1,290	1.9	.3	.5	400
Captafol	670	2,030	3.0	1.3	4.1	2,760
Chlorothalonil	1,250	3,350	2.6	.7	1.9	2,450
Other	-	2,430	-	1.0	-	2,500
Total	-	9,100	-	.8	-	8,110
Nematicides						
Ethylene dibromide	480	480	1.0	14.1	14.1	6,780
Tank mixtures						
Benomyl	60	180	3.0	.2	.6	40
+ captafol				1.7	5.2	310
Bensulide	60	170	2.8	.1	.3	20
Biphenyl	20	170	8.5	-	-	-
+ carbaryl				.5	4.0	80
+ captafol				.4	3.0	60
+ sulfur				.1	.5	10
Metallic copper	120	230	1.9	.1	.1	20
+ sulfur				1.3	2.4	290
Naptalam	360	360	1.0	2.6	2.6	970
+ bensulide				1.4	1.4	490

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Table M2. Watermelons: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Midwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank mixtures (cont'd)						
Other	-	650	-	2.1	-	1,420
Total	-	1,760	-	2.1	-	3,710
TOTAL PESTICIDES	-	23,580	-	1.4	-	33,040

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

Table M3. Watermelons: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Single applications						
Herbicides						
Bensulide	1,760	2,040	1.1	3.4	3.9	7,030
DCPA	790	4,750	6.0	.5	3.0	2,380
Trifluralin	9,310	10,990	1.1	.5	.6	5,870
Other	-	480	-	.7	-	340
Total	-	18,260	-	.8	-	15,620
Insecticides						
Bacillus thuringiensis c/	1,200	2,400	2.0	-	-	-
Carbaryl	3,950	5,760	1.4	1.1	1.7	6,820
Diazinon	790	1,580	2.0	.3	.7	590
Dimethoate	620	890	1.4	.5	.7	460
Endosulfan	440	440	1.0	.4	.4	210
Meta-systox	440	440	1.0	.5	.5	250
Methomyl	770	3,030	3.9	.9	3.8	2,990
Parathion	6,100	16,430	2.6	.5	1.4	8,790
Other	-	2,670	-	1.7	-	4,620
Total	-	33,640	-	.7	-	24,730
Fungicides						
Benomyl	1,220	1,560	1.2	.3	.4	540
Captafol	3,290	6,660	2.0	1.4	2.9	9,600
Chlorothalonil	8,280	22,860	2.7	.9	2.6	21,890
Maneb	5,310	26,630	5.0	1.2	6.4	34,050
Total	-	57,710	-	1.1	-	66,080
Tank-mixes						
Bacillus thuringiensis c/ + insecticides	700	970	1.3	.4	.5	410
Captafol	2,260	4,530	2.0	1.3	2.6	5,960
+ naled				.9	2.0	4,440
Chlorothalonil	410	1,630	3.9	2.3	9.2	3,780
+ dimethoate				.3	1.5	600

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Table M3. Watermelons: Acres treated, acre-treatments, times applied, rates and quantities used, single ingredient and tank-mix applications, Southwest region, 1979 a/ — continued

Pesticides	Acres treated b/	Acre-treatments	Times applied	Pounds of active ingredient: Per acre: Per time applied	Per acre: Annual average	Total
Tank-mixes (cont'd)						
Disulfoton + naled	2,260	4,530	2.0	1.0 .6	2.0 1.3	4,580 2,960
Total	-	11,660	-	1.9	-	22,730
TOTAL PESTICIDES	-	121,270	-	1.0	-	129,160

a/ 1979 Vegetable Pesticide Survey, Natural Resource Economics Division, ESCS, USDA.

b/ Acres treated data in this column not reported for "other" and "total" because two or more materials may have been used on the same acre resulting in double counting.

c/ Quantity data not reported because Bacillus thuringiensis is expressed in terms of number of spores per gram rather than in pounds active ingredient.